OHIO STATE
UNIVE
JAN 2
LIBRA

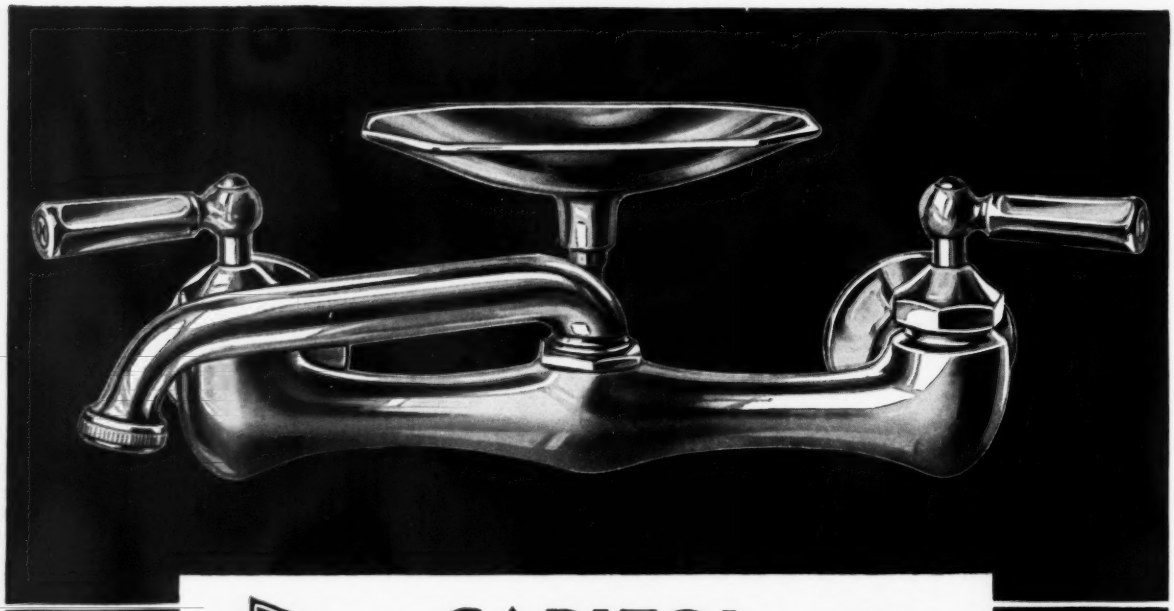
DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

JANUARY
24,
1931

This night scene on a model farm shows great differences when compared with farms of an earlier day

Open New Opportunities for the Sale of Farm Sewerage Systems



CAPITOL BOHN-910 SINK FIXTURE

Here is a sink fixture that combines utmost utility with rare good looks—worthy of a place in the finest home.

It is obtainable in two types. In chrome-plate with china soap dish and china handles, or in chrome-plate with metal soap dish and metal handles.

Both are made with 8" centers and are obtainable at the same price with either female eccentric, or male adjustable couplings.

They are precision-made throughout and in keeping with those manufacturing standards which distinguish the entire Capitol line.

Displayed and furnished by the better plumbing supply houses and plumbing contractors throughout the country. If there is not a dealer near you, write to us.

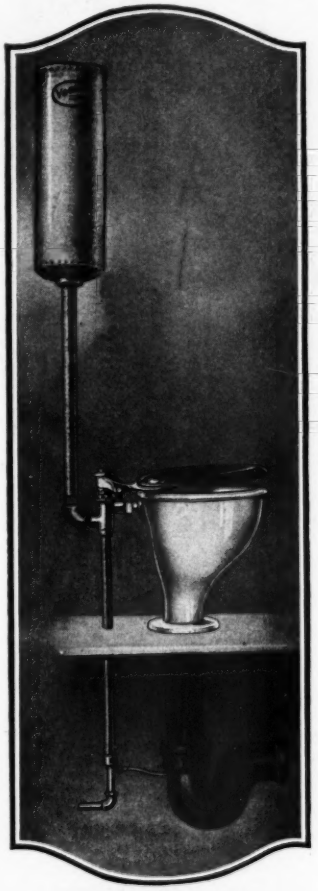
Bohn Aluminum & Brass Corporation

CAPITOL BRASS DIVISION

MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS

DETROIT ~ MICHIGAN

COUNTING PROFITS AND INSTALLATIONS PLUMBERS HAVE MADE MORE THAN $8,000,000 ON VOGEL FROST-PROOF CLOSETS AND HYDRANTS



Number One Vogel Frost-Proof Closet
Simple in operation. Sturdy in construction. Half a million in operation.

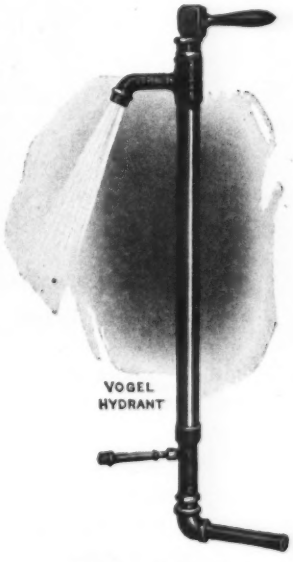
See inside back page for VOGEL advertisement on No. 10 and 10-A Closet Combinations

There are many millions more to be made

WELL over 500,000 VOGEL Frost-Proof Closets and Hydrants have been installed by plumbers in all parts of the country, and there are still hundreds of thousands of places where frost-proof closets are needed.

Also, we are building a greater market for you on VOGEL Frost-Proof Hydrants. Garages, service stations, factories, mines are all being told about the convenience of the VOGEL Hydrant.

Write us for folders and blotters to send out with your mail. They will help you get your share of these profits, which are still to be made from VOGEL Frost-Proof Closets and Hydrants.



Vogel Frost-Proof Hydrant

JOSEPH A. VOGEL COMPANY
Wilmington, Del. St. Louis, Mo.

VOGEL *Frost-Proof* PRODUCTS

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

Established 1889

Vol. 134, No. 2 | January 24, 1931 | Whole No. 1935

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Member of Audit Bureau of Circulations.

BRASS

WB Dependable Brass Products are made of finest materials under the policy of "We Sell the Retail Plumbing Trade Exclusively"

The ancient brass craftsman was just as critical of his handiwork as Wolverine brass-craftsmen. He too, knew work would last

For ages the value of brass has been determined by the skill of the workers who fashioned them. . . . . .

Skillful working of the metal gives brass products the lasting qualities that has always been considered the best reason for buying them.

Master Plumbers who insist on value when buying brass goods always choose WB Dependable Brass Products. . . . . .

WOLVERINE BRASS WORKS
Grand Rapids « « » » Michigan

WOLVERINE

Between Ourselves

IN MARCH, 1927—now almost four years ago,—we published the first of the "Plumbing and Heating Merchandising" feature sections. Since then it has been a regular feature of this paper, giving the reader eight pages of practical, usable merchandising information, without frills. It lead the way to interest in remodeling; it has consistently brought the latest merchandising ideas developed by plumbing and heating contractors in the field.

Your Editor

NOW we commence a review of the material published in the feature section during those four years. It will be classified so that, when the review has been completed, the contractor will have before him a complete, simple, practical manual of merchandising. Its divisions will enable him to look for ideas on any subject he may be interested in—how to get prospects, how to handle his newspaper advertising, direct mail advertising, and so on, through all the phases of merchandising. The first part of this review is in this issue. It covers "Prospecting"—who prospects are, how to get their names, and how to keep the prospect records. Nothing like it has ever been offered the plumbing and heating contractor —based, as this material is, on successful methods developed among the contractors.

CONTRACTORS in the plumbing and heating field need not feel that they stand alone. Certainly those of them who are interested in rural sanitation have received a great deal of assistance from various directions — particularly from the universities. Our cover this week shows a modern farm scene at night. In this issue is an article which tells how one university is opening up new sales opportunities on the farms in its state by conducting demonstrations of sewerage systems in every county. The article contains information which the contractor can use to advantage in talking sewage disposal to farm or outlying homes, and answers many of the questions our readers have asked us.

IN VIEW of the estimated increase of 200 per cent in public buildings, the series of articles we have been running on government construction work, with particular reference to hospitals being built to take care of war veterans, is attracting interest. Uncle Sam is a rather exacting employer so that the installation in these buildings has an engineering value aside from its description of government requirements. The building groups that make up a typical government hospital job offer some problems that will not fail to engage the expert sanitarian's interest.

"I APPRECIATE DOMESTIC ENGINEERING very much. I find it is very interesting and helpful for any master plumber or steamfitter."

A. Lemire, Ottawa, Ont., Canada.

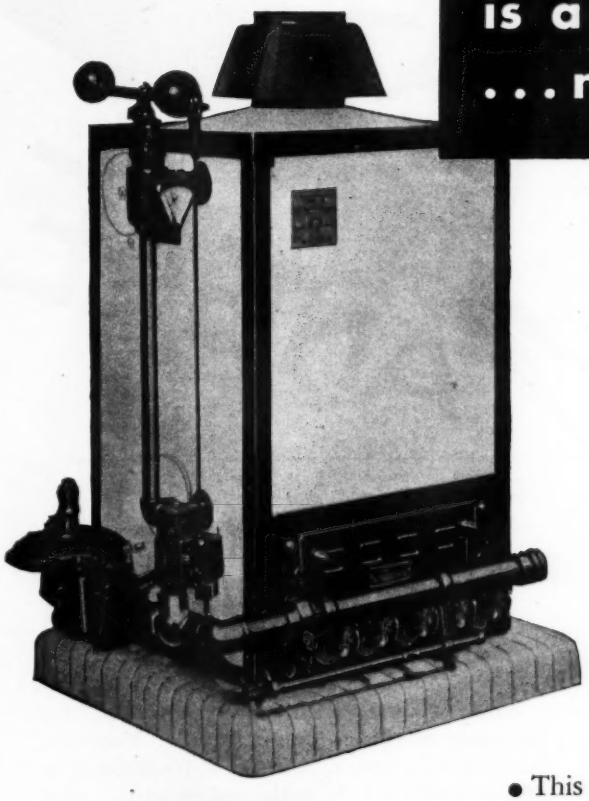
THE annual conference of association presidents and secretaries has been held, and the report of the proceedings is published in part in this issue. The ideal followed in building the program for this year was a practical one. Discussions from the floor were the rule, speeches being considered only as a means of getting such discussions under way. A typical Regional Management Conference took up the whole of one day —and the comments on it by those secretaries in whose cities conferences have been held was most illuminating. The conference is one of the high lights in the convention year and the story should be read by association officers.

AIR is thirsty. Or, to put it in the words of the author of "How Much Water Will Air Drink?"—"Air in the home has an awful thirst." Humidification is the process of supplying the necessary water to keep that thirst under control. The public is being educated daily in the effects upon health of air conditions and it seems obvious that the contractor is going to be called on more and more for equipment to keep air pure, healthy and comfortable.

YOU will remember Kipling's poem in which he said that "The colonel's lady and Judith O'Grady are sisters under the skin." That's the way we feel about the fine pictures to be published in our next issue of parts of the installation in the Empire State Building in New York City. It may be a big job—but that is its only difference. Valves, meters, ventilating ducts, heating equipment—these may all be on a larger scale, but they serve the same purposes as they do in the smaller job. The pictures show significant parts of the equipment in what is at present the tallest building in the world.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe.

100% Automatic Heat is a real Investment . . . not a Luxury



IDEAL GAS BOILERS

★ The last word in automatic heating — Ideal Gas Boilers carry all the prestige of American Radiator Company — a fact that appeals instantly to every prospect.

• This is the time to sell products that are real investments. And now that increasing gas distribution and decreasing gas rates are becoming more and more general, Ideal Gas Boilers are much easier to sell. They are not luxuries. They are real investments.

• More than 600 million dollars has just been distributed by Christmas Clubs. Much of that money will be invested in useful purchases. If this is the time to buy — it is also the time to sell.

• So start now to get your share of the profits that dealers everywhere are making. We'll be glad to give you free merchandising helps to interest your public in Ideal Gas Boilers for house heating.

manufactured by

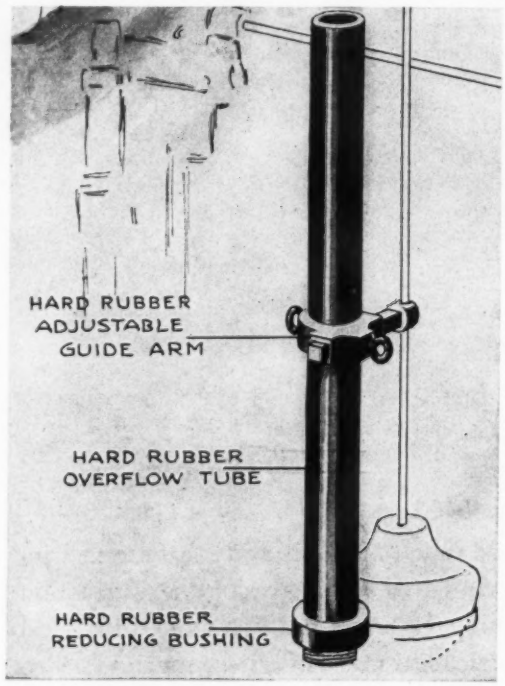
AMERICAN RADIATOR COMPANY

division of

AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

40 West 40th Street, New York

FROM ANY ANGLE



STOKES HARD RUBBER OVERFLOW TUBE and two-piece ADJUSTABLE GUIDE ARM—

Look for the Ⓢ *Mark of Quality*

Jos. Stokes RUBBER CO.
Trenton N. J.
Canadian Plant, Welland, Ontario
Moulders Since 1897

This Stokes Adjustable Guide Arm *is a Business Builder!*

—and why shouldn't it be? It is the superior of any guide arm made. You can get your customer's interest because it is novel, different, a patented product, and then you can sell him on the reliability of

Stokes Hard Rubber Products for the Plumbing Industry

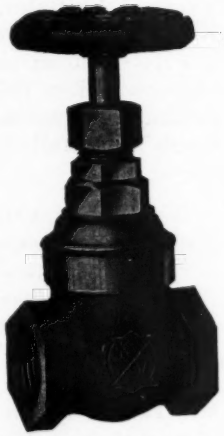
Just explain that this Guide Arm can be swung around the overflow pipe to any desired horizontal angle, and pushed in and out as well, making it easy to connect with the tank ball.

The Hard Rubber Overflow Tube is non-corrosive and cannot rust. It is extremely durable. In fact, Hard rubber is the ideal material for use under water—but be sure it is STOKES Hard Rubber, a product that is the result of 34 years unceasing research and improvement. You'll know it by the "Mark of Quality" Ⓢ that shows on every piece.

Write NOW for Prices and Samples

HARD RUBBER IN EVERY CONCEIVABLE FORM

For over half a century—
helping to make creditable, profitable jobs



Kennedy Standard Bronze Gate Valve. The Kennedy line also includes Globe, Angle and Check Valves for all purposes in a wide range of sizes.

Kennedy Malleable Iron Elbow. The Kennedy line of screwed fittings includes both bronze and malleable iron pipe fittings.

Plumbing and Heating Contractors have long found the Kennedy line profitable to handle. The list of Kennedy users includes many who have standardized on Kennedy Products for twenty-five, thirty and forty years.

Such loyalty is earned only by consistently fair dealing and mutually profitable relationship. You will find the experience of other contractors a safe guide to follow in tying up with Kennedy. The Kennedy line covers practically every valve and pipe fitting requirement of the plumbing and heating industry, and the long-established reputation of Kennedy Products for skillful design, honest construction and lasting good service makes Kennedy Valves and Pipe Fittings readily acceptable to your customers.

Send for the Kennedy Catalog

THE KENNEDY VALVE MFG., Elmira, N. Y.

WAREHOUSES:

NEW YORK CITY: 128-132 White St. CHICAGO: 1335-1337 S. Clinton St.
SAN FRANCISCO: 448-450 Tenth St.

SALES OFFICES:

New York Philadelphia Cleveland Atlanta Chicago
Salt Lake City El Paso Seattle Los Angeles San Francisco

What contractors think about Kennedy Products

"I install nothing but Kennedy Valves, as I find them the best."

"Kennedy Fittings help us to do better work with less effort."

"I find Kennedy Fittings to be the best that can be gotten and always use them in all our work."

"I have used Kennedy Valves for 35 years and have had best service."

"Both in finish and threads we find Kennedy Fittings the best we ever looked into, say our employes. We agree with them."

"We have used Kennedy Fittings for some time, and they have proved quite satisfactory. The tapping runs true both as to size and direction. They are light, yet strong, and stand more tightening than any other fittings we have ever tried."

"Have been using Kennedy Valves and Fittings for years, as they are always reliable and stay tight."

"I always insist on Kennedy Fittings, as I find them perfect and easy to enter or connect with good tapping. Their machine work is all that can be desired."

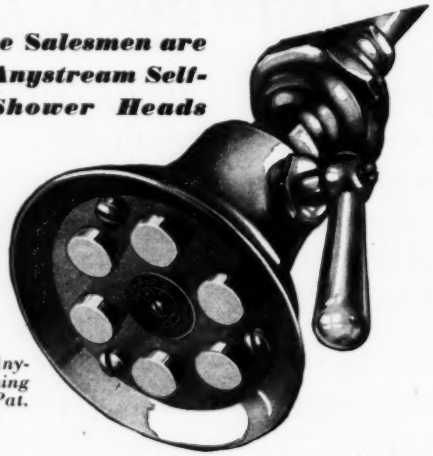
KENNEDY
VALVES-PIPE FITTINGS-FIRE HYDRANTS

YOU CAN GET TWO SALESMEN WHO WILL WORK FOR YOU ALL THE TIME NIGHT AND DAY . . NEVER ASK FOR ANY PAY AND WILL MAKE SALES WHICH CAN EASILY TOTAL SEVERAL THOUSAND DOLLARS PROFIT FOR YOU THIS YEAR . .

Look at this partial list of places where Speakman Anystream Self-Cleaning Shower Heads have been installed. There are thousands of additional places where a shower head on trial will make the sale.

Y. M. C. A., Dubuque, Iowa
Municipal Baths, Yonkers, N. Y.
Beverly Country Club, Chicago, Ill.
Hollenden Hotel, Cleveland, Ohio
Penn State College, State College, Pa.
Senior High School, Norfolk, Neb.
Y. M. C. A., Nashville, Tenn.
Y. W. C. A., Cortland, N. Y.
Onesta Hotel, Canton, Ohio
Hamilton Club, Chicago
Y. M. C. A., Springfield, Ill.
Y. W. C. A., Akron, Ohio
Y. M. C. A., Wilmington, Del.
Chrysler Bldg., New York
Ebbetts Field, Brooklyn
Hotel Cleveland, Cleveland, Ohio
North High School, Akron
Missouri Athletic Assn., St. Louis
Catholic College, Mundelein, Ill.
University of Illinois, Urbana, Ill.
Gibson Hotel, Cincinnati, Ohio
Decatur Club Bldg., Decatur, Ill.
Severin Hotel, Indianapolis
Mayflower Hotel, Washington, D. C.
Men's Field House, Morgantown, W. Va.
K. of C. Club House, Brooklyn, N. Y.
Westchester Biltmore Country Club, Rye, N. Y.
State Teachers College, Hillwood Lakes, N. J.
Walnut Hills High School, Cincinnati, Ohio
Harvard University, Cambridge, Mass.
Senior High School, Philadelphia, Pa.
Vanderbilt Athletic Assn., Nashville, Tenn.
Mass. Institute Technology, Boston, Mass.
Naval Training Station, Detroit, Mich.
Graystone Park Apt., Morristown, N. J.
Sunset Ridge Country Club, Winnetka
Cranbrook Gymnasium, Detroit, Mich.

These Salesmen are Speakman Anystream Self-Cleaning Shower Heads



K-3395 Speakman Anystream Self-Cleaning Shower Head (Pat. Jan. 2, 1923)

BUY two heads, put them in hotels, apartment houses, Y.M.C.A.'s, athletic, golf and country clubs and institutions, on trial from 10 to 30 days. Then go back and get the orders.

Thousands and thousands of these heads are being sold by such demonstrations. One hotel installed 707 heads — this was the Hotel Gibson in Cincinnati. The Hollenden in Cleveland put in 200. Harvard University put in more than 400. We have a list of places all over the country in which from 10 shower heads up have been installed.

And you make four dollars on each head. We are paving the way for these sales by our advertising in publications read by the people who will buy them, also by a heavy direct-by-mail campaign. We know by what others have done that you can sell these heads.

Now tell your jobber to send you two heads. Put them to work and you stand a good chance to make several thousand dollars profit from their services this year.

And don't forget — make an extra sale with every shower you install — the Anystream Self-Cleaning Shower Head fits all types of Speakman showers as well as all other makes.

Call on us for direct-by-mail literature — folders, stickers and blotters.

SPEAKMAN COMPANY
Wilmington, Delaware

Taken from letters written to us by men who have purchased from one to more than 700 Anystream Shower Heads.

Mr. C. C. Shiffeler, Managing director of The Hotel Gibson, in Cincinnati, where 707 Speakman Anystream Heads are installed, wrote:

"They have created splendid comments from our guests, and have certainly eliminated all of our shower troubles."

Mr. Theo. De Witt, General Manager, The Hollenden Hotel, Cleveland, Ohio, where there is a 200 Anystream Shower Head installation, wrote:

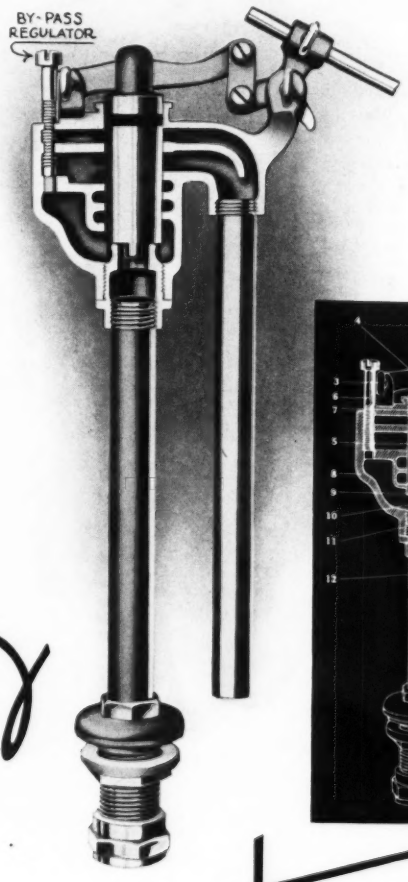
"We do not hesitate in saying that the Speakman Shower Heads are far superior to any shower heads we have used at this hotel prior to this installation."

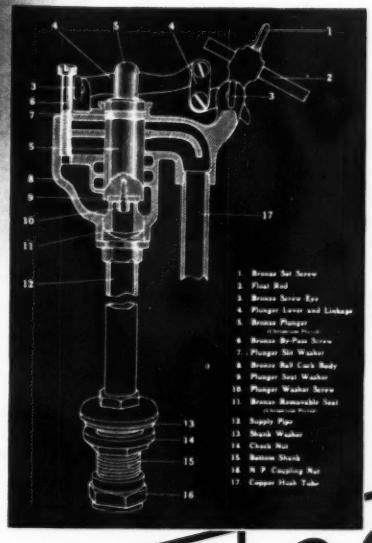
Mr. L. E. Metcalf, manager, Green Hill Farms Hotel, in Philadelphia, after installing 10 heads, wrote:

"We have recently installed ten, and within the near future intend to install Speakman Shower Heads throughout the building."

SPEAKMAN SHOWERS & FIXTURES

QUIET and ENDURING





Constructed—

for QUIET and LASTING SERVICE

With the finest of metal, careful workmanship, ever-alert proving, we are constructing the Curtin line of bathroom tank fittings to give unusually long service with quietness of operation. The results of our efforts have proved that a good product, honestly made, is appreciated by the majority of people.

Full Specifications in Domestic Engineering Catalog

A. F. CURTIN VALVE COMPANY

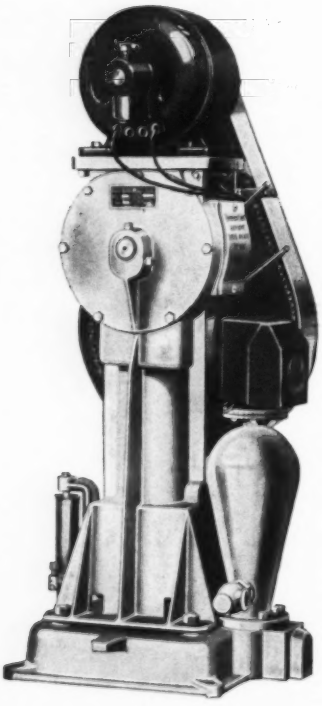
Medford Massachusetts

CURTIN

TANK NOISELESS FITTINGS

DURO

DEEP WELL PUMP PRICES REDUCED!



Duro 900 series deep well pump—Capacities 165 to 400 g. p. h.

From the standpoint of quality, design and performance, the 900 Series of Duro Deep Well Pumps have never been excelled.

Considering their workmanship and quality, together with the fact that they are equipped complete in every detail, they have been priced very low.

NOW—to meet the demand for still lower prices, the entire line of Duro 900 Series Deep Well Pumps have been drastically reduced.

You can now purchase the 900 Duro Deep Well Pump *complete* with Pressure Controller, Discharge Check Valve, Relief Valve, Air Chamber, Nipple and Reducing Coupling; and Well Cylinder or Working Barrel, as low as *$140.00 retail price*, subject to your regular trade discount.

Line up with Duro the Live One.

THE DURO COMPANY · · · DAYTON, OHIO

Write for Catalog.— Water Softeners, Water Systems, Filters, Cellar Drainers, Motors . . . Sales Offices in Principal Cities.

THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

A Letter from Harry G. Nye

January 24, 1931.

To the Plumbers and Steamfitters of the U. S. A.

Is Everybody Happy? Not So You'd Notice

Friends:

It would be so easy to make this a happy world that I wonder why we don't do it. I have talked to a number of people lately who were festered about something or other, and I've found the right way to fix things right away.

Let the woman who says that all her husband does is to stick down in that old shop and work, marry the man who does nothing but sit around the house all day.

Let the children who are ashamed of their father live in the orphan asylums, where they will be unannoyed by parents, and let the orphans know what it is to have a dad.

Let the man who says that all public officials are crooks have his own doings published every day, and often by his enemies, so the world will know there is at least one honest man.

Let the wets live in the Dismal Swamp and the drys in the Sahara Desert, and let the rest of the people, who aren't darned fools either way, have the rest of the earth.

Let the book-keeper, who never goes places and sees things, not even see his folks, and let the traveling salesman, who would like to settle down, settle down on the same stool every day.

Let the woman who's married get out and rustle for herself, and let the girl who's single have to ask a husband for two dollars for his laundry and a dollar and a half for a house-dress.

Let the rich have to worry where the next dollar is coming from and the poor have to worry where the last hundred went. Let the boss have to take orders and the men have to meet a payroll.

It may not work, but anyway it is easy to make the plumbers and steamfitters happy. Let them all use Nyé Tools and they will get through their work twice as easy and twice as fast.

Yours for Happiness.

Harry G. Nye

Patents Pending

THE LIGHTWEIGHT CHAMPION

Threads—Cuts off and Reams

Capacity ⅛ to 2 Inches

Furnished with either A. C. Motor, Universal Motor or Gasoline Engine

OTHERWISE KNOWN AS

THE NYE TOOL & MACHINE WORKS

4120-30 Fullerton Avenue :: Chicago

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THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

17-20-0?

—what have you!

On every trap in the "WISECO" Line you will find clearly stamped the manufacturer's name and the gauge of tubing. You are always sure when you specify "WISECO PRODUCTS" that you get what you pay for. It is an important added protection to you and your customer.

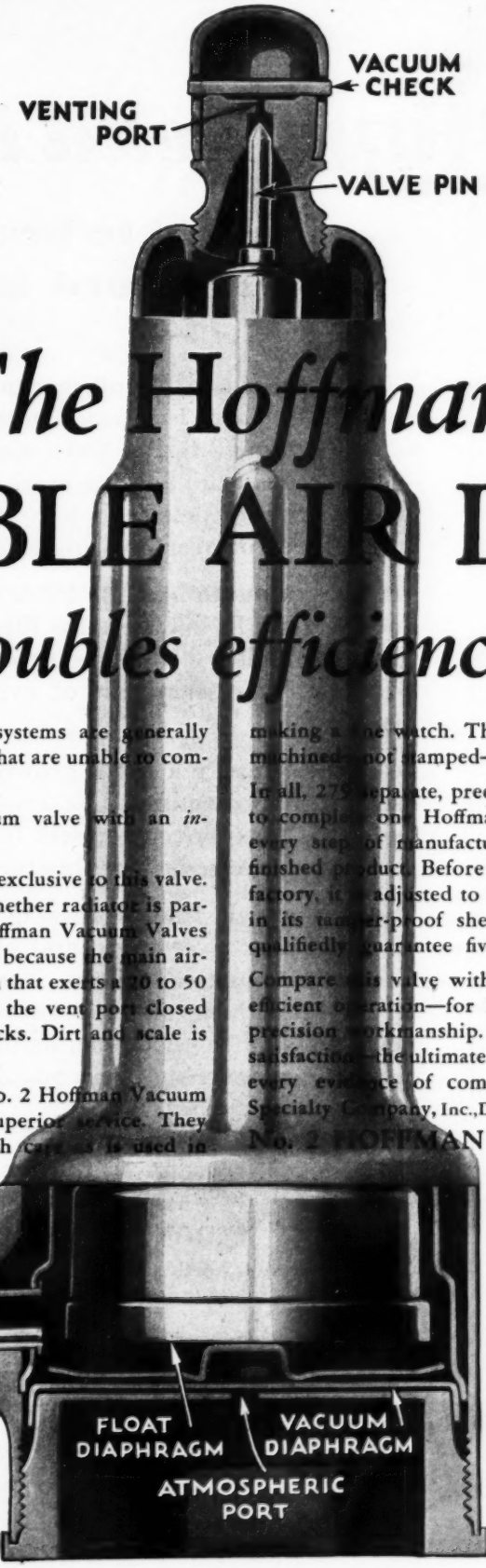
Think this over and insist on "WISECO PRODUCTS" in the future. Your jobber can supply you.

J. B. WISE, INC.

WATERTOWN :: NEW YORK

NEW YORK PHILADELPHIA LOS ANGELES
CHICAGO ATLANTA SEATTLE

THE STANDARD OF QUALITY SINCE 1877



The venting port remains wide open until air is completely exhausted from the system. The vacuum check is a "vacuum starter" and used only when the radiator has not been fully heated and the vent port closed by steam. It retards intake of air until one inch of vacuum has formed. Then the vacuum diaphragm comes into action and keeps the air-port tightly closed.

The Hoffman DOUBLE AIR LOCK *doubles efficiency*

Failures in one-pipe *vacuum* systems are generally traceable to one cause—valves that are unable to completely vent air and *keep* it out.

So Hoffman designed a vacuum valve with an *ingenious double air lock.*

Examine this patented feature—exclusive to this valve. It insures efficient operation whether radiator is partially or fully heated. No. 2 Hoffman Vacuum Valves "pull" and hold a high vacuum because the main air-lock is operated by a diaphragm that exerts a 20 to 50 times greater pressure to hold the vent port closed than ordinary disc or ball checks. Dirt and scale is crushed or pushed aside.

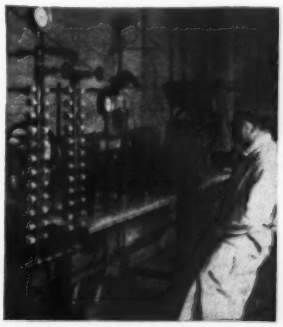
There are other reasons why No. 2 Hoffman Vacuum Valves give such long-lived, superior service. They are manufactured with as much care as is used in making a fine watch. The valve pin, for example, is machined—not stamped—to fit tightly in its seat.

In all, 275 separate, precise operations are necessary to complete one Hoffman Valve. Rigid tests check every step of manufacture—from raw materials to finished product. Before a Hoffman Valve leaves the factory, it is adjusted to water and steam, and sealed in its tamper-proof shell. That's why we can unqualifiedly guarantee five years of efficient service.

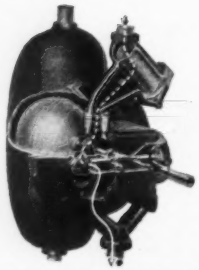
Compare this valve with any other. Compare it for efficient operation—for low cost of servicing — for precision workmanship. Finally, compare it for user satisfaction—the ultimate test of any valve. You'll find every evidence of complete superiority. Hoffman Specialty Company, Inc., Dept. RX-55, Waterbury, Conn.

No. 2 HOFFMAN VACUUM VALVES

When steam enters the valve, the float diaphragm expands, raising the valve pin and closing the port. With a cessation of steam generation, the float drops, but air is sealed out by the action of the vacuum check which temporarily closes the vent port. As soon as a one inch vacuum is present in the radiator, the vacuum diaphragm is expanded by atmospheric pressure, again lifting the float and closing the vent port.

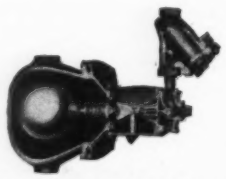


Diaphragm metal is here subjected to millions of rapid expansions and contractions at a high temperature. It must prove that it will not break, stretch or soften under severest usage.

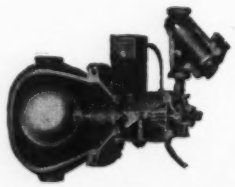


The McDonnell No. 28 Self-Cleaning Rotary Valve Duplex Feeder has been still further improved by the addition of hardened stainless-steel valves. Use it for boilers over 3000 feet that are not operated under vacuum. When installed in connection with the No. 32 Switch, this feeder offers the ultimate in protection for oil—or stoker-fired jobs.

The No. 29 Single Valve Self-Cleaning Feeder is ideal for larger boilers that are operated under vacuum or for all types of larger installations where it is desired to locate the feeder slightly below the normal water line.



The McDonnell No. 30 Safety Feeder for hand-fired or gas-fired jobs under 3000 feet capacity—a feeder of McDonnell quality and dependability at a price that can be justified for smaller boilers.



The No. 30 Safety Feeder combined with the No. 31 Emergency Switch—double protection plus convenience for all boilers under 3000 square feet capacity equipped with oil burner or stoker.

The No. 32 Cut-out which provides double protection in connection with the No. 28 or No. 29 Feeders.

Way ahead in 1930

. . . and out to beat their own record in 1931

When a candidate for office runs way ahead of the whole ticket there isn't any doubt about his qualifications. McDonnell Boiler Feeders did just that in 1930 — they outran the heating market — made the most money for contractors they ever made — beat their own records of ever-growing sales.

And they're out to beat the 1930 record during 1931. They will do it, too, because there is no longer any doubt that boiler feeders are rapidly becoming recognized as a necessary part of every steam, vapor or vacuum job.

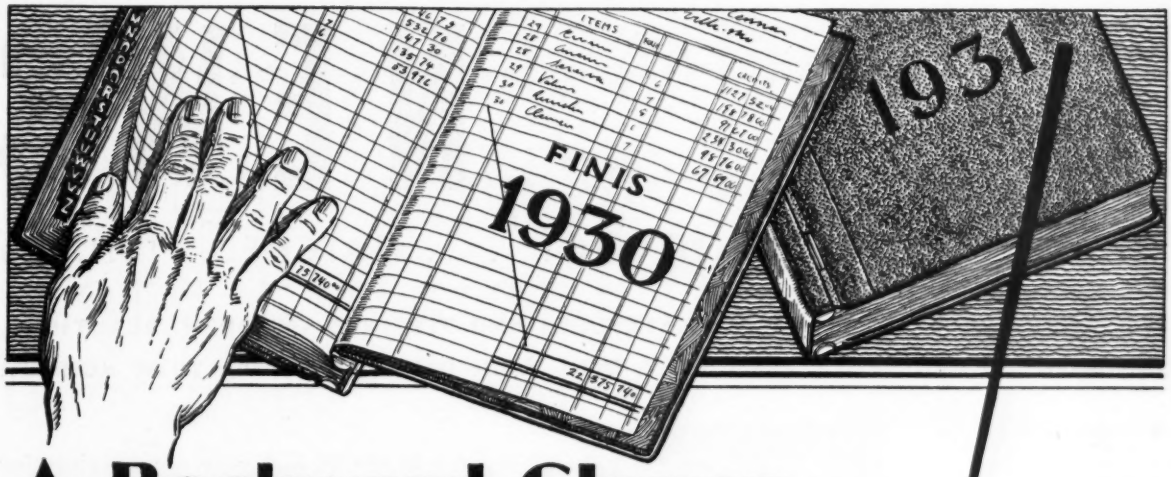
Yes, at least one market is growing—the market for McDonnell protection. The quicker you recognize that fact, the quicker you will begin to share in the profits that hundreds of contractors have been making.

The McDonnell line is complete — it offers boiler protection for every type and size of boiler, hand-fired or automatically fired. Note the completeness of the line illustrated opposite and ask for simple clear-cut service recommendations and installation instructions covering every requirement.

Decide right now to be a part of the McDonnell 1931 success.

McDONNELL & MILLER
400 North Michigan Avenue, Chicago
***Eastern Office:* Grand Central Terminal, New York, N. Y.**

McDONNELL Boiler Feeders
"DOING ONE THING WELL"



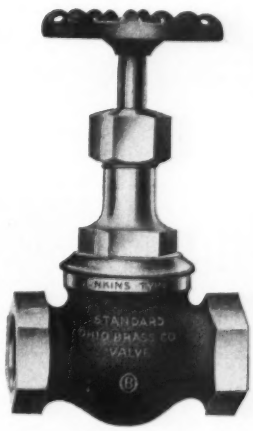
A Backward Glance *for Future Guidance*

THE year 1930 will not have been without its benefits for those plumbing and heating contractors who profit by experience. It has brought to them the realization of the tremendous importance of effecting numerous economies on small operations—economies which become increasingly significant as the margin between profit and loss grows less.

Unnoticed opportunities have existed for cutting down small items of cost in contract work. While it is true that such individual savings were often quite small—sometimes amounting to only a few cents—their *total* became significant when determining the final profits. And when the books were closed at the end of the year, it was impossible to tell from the figures whether the total profit resulted from a single item or from a large number of small items.

Many plumbers and heating contractors found that splendid opportunities for effecting small economies existed in the installation of valves. Analysis showed a definite saving in the time required for make-up of Ohio Brass Valves as compared with other valves. And starting from this point, it was only a short step to the discovery of other operations which provided similar savings.

If you would discover for yourself the importance of saving a few cents in valve make-up time, take a backward glance over last year's records. Note the number of valves installed by your journeymen during the year and multiply this figure by the individual saving in make-up time of one Ohio Brass Valve. (This saving not infrequently runs as high as fifteen cents). The result should guide your future actions and enable you to enjoy "extra profits from the make-up."



Ohio Brass No. 10 Line

Ohio Brass Composition Disc Globe, Angle and Check Valves are built for 150 lbs. w.s.p. Parts are interchangeable with other standard pattern valves of this type.

Ohio Brass Company
Mansfield, Ohio
1355V

Ohio Brass Co.

NEW YORK PITTSBURGH PHILADELPHIA CHICAGO ATLANTA BOSTON CLEVELAND ST. LOUIS LOS ANGELES WM. P. HORN CO: SAN FRANCISCO SEATTLE

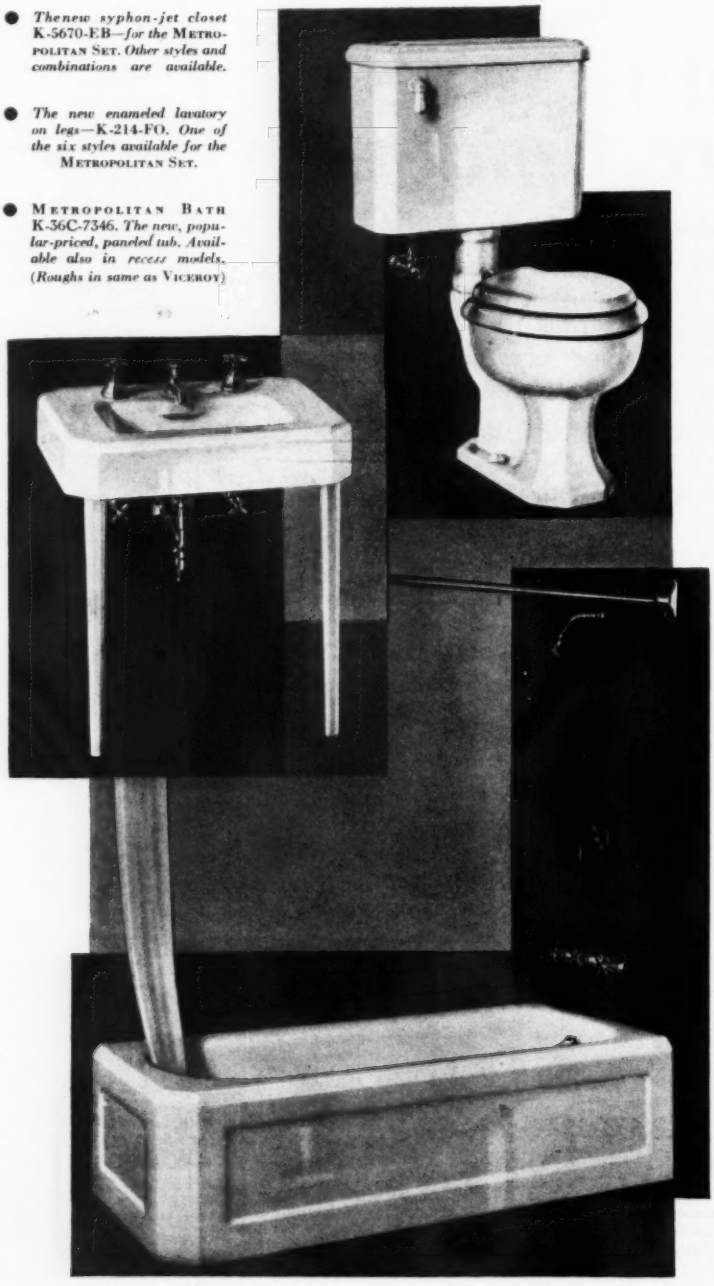
PORCELAIN INSULATORS
LINE MATERIALS
RAIL BONDS
CAR EQUIPMENT
MINING MATERIALS
VALVES

NEWS

THE "Metropolitan Set"... MATCHED FIXTURES

A BRAND-NEW SERIES OF RELATED FIXTURES AND FITTINGS—MODERN, BEAUTIFUL, DESIGNED TO HARMONIZE ESPECIALLY WITH EACH OTHER. ORIGINAL WITH KOHLER!

- *The new syphon-jet closet* K-5670-EB—*for the* METROPOLITAN SET. *Other styles and combinations are available.*
- *The new enameled lavatory on legs*—K-214-FO. *One of the six styles available for the* METROPOLITAN SET.
- METROPOLITAN BATH K-36C-7346. *The new, popular-priced, paneled tub. Available also in recess models.* (*Roughs in same as* VICEROY)



IF YOU'VE had your eye on plumbing trends, you've watched the demand for matched fixtures gather speed. Bathrooms, important as they are, have been getting brighter, more important all the time. And lately, home-hunters and home-owners, keen about the decorative effect, have been asking for lavatories, baths, and closets *that go together.*

Now, for the first time in plumbing history, a manufacturer is deliberately merchandising these related fixtures and fittings — at popular prices! Knowing your bathroom, knowing the architectural treatment of the house, you simply choose the Kohler set which best suits. Easy as one-and-two! And from the smooth shining glaze of the enamel or vitreous china, to the distinguished fittings, *every* fixture in that set agrees perfectly in design, style, quality, and color with the others!

The first of the new sets is illustrated —an exclusive Kohler design. You have a choice of sizes and models. Octachrome fittings are new, too—made of the finest brass, they do their work surely, silently, positively. . . . All-Kohler plumbing is a lifetime investment in comfort. Complete Kohler bathrooms with matched fixtures, a great step forward, promise unfailing beauty and satisfaction.

Kohler Co. *Founded* 1873. Kohler, Wis.—*Shipping Point*, Sheboygan, Wis. —*Branches in principal cities.* . . . Look for the Kohler trade-mark on each fixture and fitting.

KOHLER
OF
KOHLER

The Story Only MULTICELL Can Tell . . . is the Story of a Simpler, more Efficient Unit Heater, *Guaranteed Against Leaks*

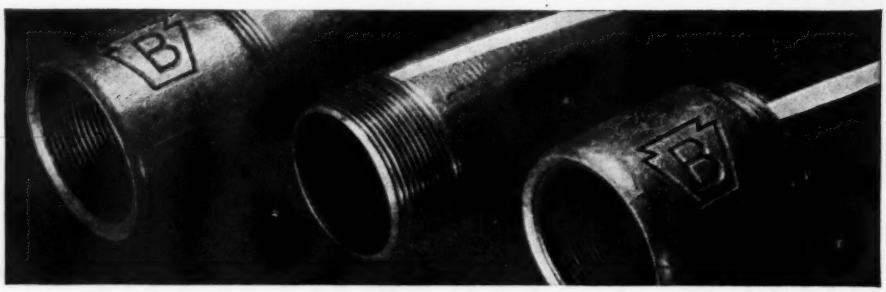
ONLY MULTICELL can tell this story because only Multicell has applied the principle of electrical deposition to the manufacture of a heating surface. This exclusive, patented process makes possible a cellular section of all prime heating surface and of seamless one-piece copper construction, resulting in the greatest possible heat transfer with minimum area, weight and resistance—and eliminating the usual multiplicity of soldered joints.

This unique heating surface is built into a unit heater of surprising simplicity. All fins, slip joints and diaphrams have been eliminated. Frames are of cast iron with flow and return headers cast integral. Sections are mounted in the frames by compression unions at top and bottom. Once you install a Multicell heater it stays installed, since even though a section is accidentally damaged, only momentary interruption to the heating service is necessary. The damaged section can be quickly removed for repair or replacement, and by simply plugging the flow and return header openings the unit will continue to function efficiently.

Multicell's outstanding advantages have made possible the most sensational guarantee ever placed upon a Unit Heater—a guarantee against defects, leaks and piping strains.

You'll be money ahead if you investigate Multicell before you install any Unit Heater. The complete story will be mailed on request. Address: MULTICELL RADIATOR CORPORATION, Lockport, New York.

MULTICELL
UNIT HEATERS



THERE ISN'T ANY BOOMERANG WITH

"PIPE PRESCRIPTION"

"Pipe prescription" means the selection of a specific kind of pipe to meet a specific kind of service. Original cost is not the only factor for consideration.

There may be several piping materials which will serve but only one which will serve best at lowest cost per year of service.

Your experience may be a reliable guide in writing your "pipe prescriptions" but if you are in doubt let us add the assurance of our engineering counsel.

Whenever you prescribe wrought iron pipe you will find Byers Spiral mark your best assurance of high quality. A. M. Byers Company, Pittsburgh, Pa. Established 1864.

BYERS • GENUINE • WROUGHT-IRON PIPE

AN INVESTMENT—NOT AN OUTLAY

Mueller STREAMLINE Copper Pipe and Fittings Have Opened Up A Tremendously Increased Market to the Skilled Plumber

HERE ARE SOME OF ITS ADVANTAGES:

LOWER COST. Mueller STREAMLINE Copper Pipe and Fittings costs you less than any other non-ferrous material for the purpose. It gives your customer a better job and a permanent one.

RADIATES LESS HEAT. A Mueller STREAMLINE Copper Pipe and Fitting installation radiates very little heat. In fact, nine times less than other materials commonly used for the purpose and in hot water lines, steam lines, etc., can very often be advantageously used without insulation.

CORRESPONDINGLY SMALLER PIPE SIZES CAN BE USED. The waterway through STREAMLINE pipe and fittings is uniform and smoothly recessed, resulting in an uninterrupted flow. This quality, together with freedom from clogging rust and smooth interior of the pipe, cuts flow resistance to a minimum. These features make it practical to reduce the pipe sizes on the plans at least one size throughout.

REQUIRES LESS SPACE. A Mueller STREAMLINE installation is not connected by either threading or flaring, consequently no room is required for wrench grip. It may be placed close up to walls, partitions and ceilings.

It cannot rust or corrode, and will outlast the building in which it is installed.

Even after years of use, it is immediately usable for the same service if installed again. Its salvage value as reclaimed metal is at least 40% of its original cost.

Here is an installation that requires the plumber's skill to connect—one that gives his customer the utmost in carefree service, and, above all, an installation that increases the plumber's profits and promotes his reputation. The plumber who installs STREAMLINE in his community creates an object of extreme advertising value for himself; it invariably results in new jobs.

It will pay you to thoroughly investigate the merits of this new Mueller STREAMLINE fitting because your expert opinion will be sought by probable users and your advice carefully considered.

Mueller Brass Co.

PORT HURON, MICHIGAN

Three Generations of Brass Making

Patent 1,770,852
Patent 1,776,502
Other Patents Pending

Patent 1,770,852
Patent 1,776,502
Other Patents Pending

Patent, 1,770,852
Patent, 1,776,502
Other Patents Pending

Patent 1,770,852
Patent 1,776,502
Other Patents Pending

Patent 1,770,852
Patent 1,776,502
Othe Patents Pending

SPANG
WELDED STEEL PIPE

SPANG

Welded Steel PIPE

In the new Park Plaza Hotel ... St. Louis

Architects
Edwin J. Bauman
Lawrence O. Schopp

Owners and Builders
Park Plaza Co.
Sam Koplar, Pres.

Plumbing Contractors
J. A. McBride Mechanical Equipment Co.

Heating Contractors
D. F. Edwards Htg. Co.

Plumbing and Heating Wholesalers
N. O. Nelson Mfg. Co.
St. Louis, Mo.

Without, a magnificent expression of modern architecture . . . within, the epitome of modern living comfort and luxury . . . built to meet the critical requirements of the world's elite . . . every detail of its construction demanded the best, including "Spang" welded steel pipe, the choice of the leading plumbing and heating contractors.

SPANG, CHALFANT & CO., INC.

General Offices: CLARK BUILDING, PITTSBURGH, PA.

Sales Offices: New York, Boston, Pittsburgh, Chicago, St. Louis, Tulsa, Los Angeles, Dallas, Birmingham

Welded Mills: Etna, Penna., Sharpsburg, Penna.

Seamless Mills: Ambridge, Penna.

SPANG
WELDED STEEL PIPE

WHAT $123.00 BUYS in BLACK & DECKER *Electric Tools*

4 TOOLS THAT EVERY SHOP NEEDS!

These four Black & Decker Electric Tools should be in every shop where holes are drilled or grinding, buffing or polishing is done. They are powerful, sturdy and dependable.

All 4 Tools for
ONLY $123

Buy these useful tools from your Jobber. Or mail the coupon below for illustrated Catalogue showing the complete line of Black & Decker Portable Electric Tools.

BLACK & DECKER

Mail Today for Catalogue!

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Slough, Bucks., England — **Toronto, Ontario, Canada** — **Sydney, Australia**

BLACK & DECKER MFG. CO.
TOWSON, MARYLAND DE

Please send illustrated Catalogue showing complete line of Black & Decker Portable Electric Tools.

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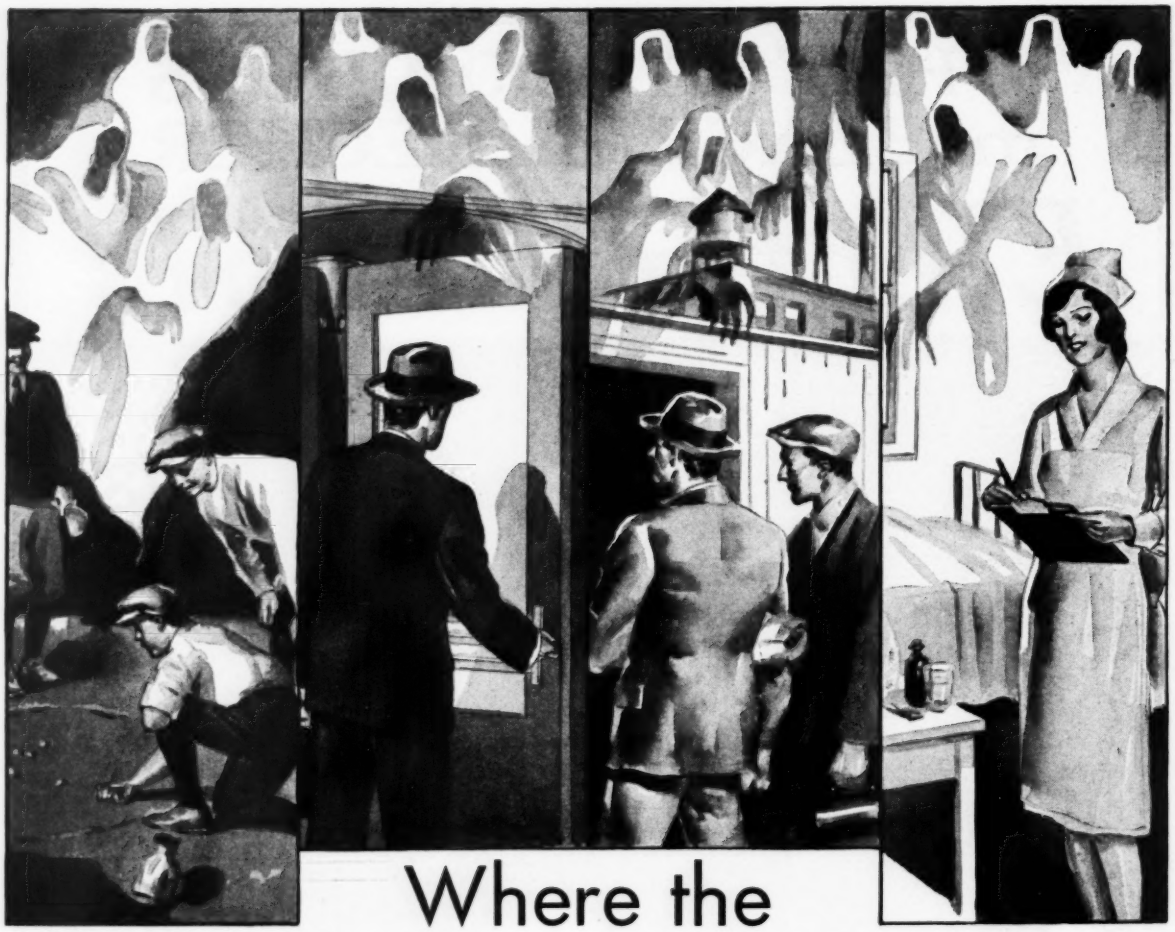


Where the Deadly Legions Gather He Fights Your Battle

Every school, industrial plant, hospital, public building and similar place where humans gather is a potential rallying ground for the unseen legions of mankind's greatest enemy.

Wherever sanitation may be an acute problem, the Clow Soldier of Sanitation is your logical ally. Call him in. With his long experience and his complete line of specialized fixtures he naturally is, and can afford to be, unbiased in his ideas. This is L. E. Woesner, Loan and Trust Bldg., Milwaukee, Wis.

To "defeat" the germs that make up this army—*and to lower the costs through-the-years* —through proper plumbing facilities, has been the job of the Clow Sanitation Soldier since 1878.

It was a Clow Man who was called into a prominent Southern city when Typhoid had all but won the battle.

It was a Clow Man who was drafted into Cuba as an important ally against the deadly legions of Malaria.

Today these Clow Soldiers of Sanitation carry on, less spectacularly, but even more scientifically and effectively. They have developed the Clow-Madden Automatic Closet for schools and public places. They have given us the sanitary drinking fountain. And they have developed a wide variety of fixtures to meet special and dangerous sanitary conditions.

52 years of experience in the battle against pollution, ill-health, and uncleanliness give the Clow Soldiers unmatched knowledge of mass plumbing needs.

The largest line of specialized fixtures, carefully built, help them help you to meet any requirement no matter how specialized or acute.

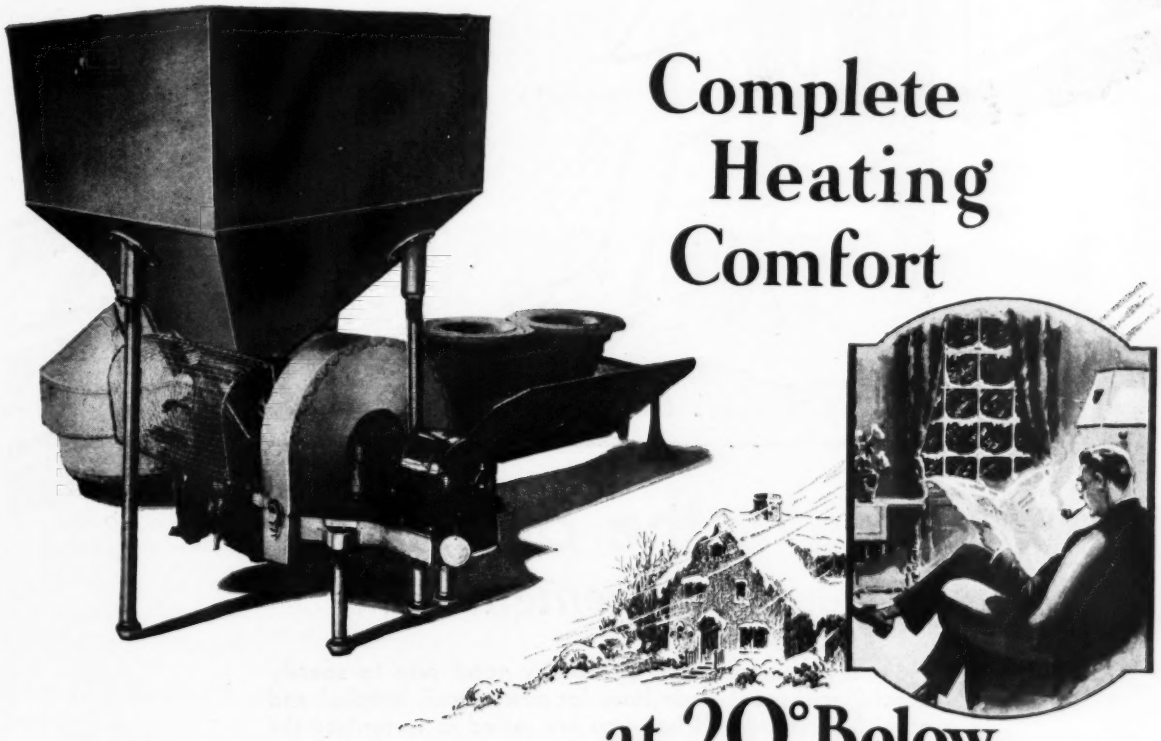
CLOW

CHICAGO

PREFERRED FOR EXACTING PLUMBING SINCE 1878

Consult your architect

PROVEN PERFORMANCE



Complete Heating Comfort at 20° Below

THE real proof and test of the satisfactory operation of any home heating device comes on the coldest days of winter. Thousands of Electric Furnace-Man installations—many located in the extreme northern sections of the United States where 20° below zero is not uncommon—have given complete heating comfort throughout *many heating seasons*.

Owners of these installations tell us that the Electric Furnace-Man keeps their homes just as comfortable—at a healthy, even temperature—during the coldest days of winter as during the Spring and Fall. This is what we mean by Performance—giving wholly enjoyable automatic heat season after season.

The Electric Furnace-Man's outstanding design and sturdy construction assure reliable service year after year. Its fuel, Pennsylvania Anthracite, buckwheat and rice sizes, is safe, clean, and economical. It is fed and burned by the Electric Furnace-Man just as required to maintain the desired temperature.

You can recommend the Electric Furnace-Man with absolute confidence. With Distributors and Dealers in over 350 cities, the Electric Furnace-Man is geared to cooperate with you.

AUTOMATIC ANTHRACITE HEAT

The Electric Furnace-Man

(Patented Automatic Coal Burner)

Domestic Stoker Company • • 7 Dey St., New York

You're the doctor—

on *Replacement* work

Nowadays the architects take pretty good care to specify special acid-proof drain lines for new school, hospital and other laboratories. When you are called in to replace the acid-destroyed waste line in an old timer, *you're* the doctor. That's the time to recommend DURIRON to your customer---for his satisfaction and your profit. No special labor; you calk it just like ex. hy. C. I.

THE DURIRON COMPANY, INC. 410 N. Findlay Street DAYTON, OHIO

Sales Offices in 36 Principal Cities

DURIRON ACID PROOF DRAIN-PIPE

Shall we send you our Price List for your file?

New Humidifier opens way to IMMEDIATE PROFITS

Meets *universal demand for successful, low-priced humidifier*

You are aware of the need for a successful, low-priced humidifier in every radiator-heated home. Can you read the national advertising about the Doherty-Brehm Humidifying Radiator without visioning the new business it is creating for you?

Evaporates up to 100 gallons daily

The Doherty-Brehm Humidifier fits into any steam, hot water, or vapor heating system and heats while it humidifies. It is installed as easily as an ordinary radiator. The only extra piping is a supply pipe and a drain. One humidifies a house up to 12 or 14 rooms and additional units can be installed to properly humidify any size building.

Automatic and trouble-free

Your clients will like its automatic and attentionless operation. It has no fans, belts, motors, or moving parts to get out of order. No steam, no noise, no odor.

An entry to other business

One modernizing job leads to another. The Doherty-Brehm Humidifying Radiator can help you get other heating and plumbing business. It is often an entry to complete modernizing jobs.

Retails at $150 to $225, f. o. b. factory, installation extra, in handsome metal cabinet. Supplied also in beautiful period wood cabinet. Or for recessing into wall. Types and sizes for any building heated by steam, hot water, or vapor. Water fed in at the top spreads out over the horizontal first section, the overflow going down and spreading out over the second section, and so on until the last section is reached and a drain carries away the small unevaporated surplus.

Easy payments on the CRANE *Budget Plan*

The Doherty-Brehm Humidifying Radiator is sold by **CRANE** only through dependable heating and plumbing contractors. You can install it under *the* **CRANE** *Budget Plan for only 10% down, the balance monthly.* Every heating and plumbing contractor should have complete specifications, installation information, and selling data.

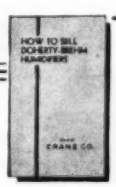
DOHERTY-BREHM

HUMIDIFIER

SOLD BY

CRANE

Mail coupon for this book

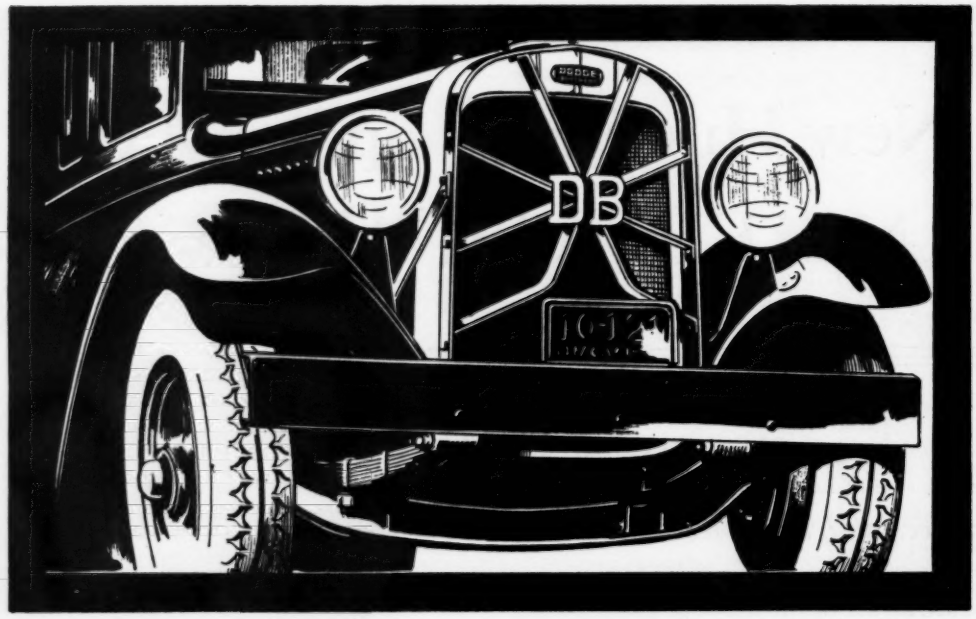


DOHERTY-BREHM CO. D.E.1
333 North Michigan Ave., Chicago, Ill.

Please send your booklet: "How to Sell the Doherty-Brehm Humidifier".

Name.....

Address.....



SEE THE COMPLETE HEAVY DUTY LINE

For the heavy duty needs of those engaged in the plumbing and heating industry, there is now an unusually complete line of Dodge Trucks—ranging in payload capacities from 2,950 to 11,175 pounds. They are heavy duty trucks through and through . . . with exceptionally powerful, dependable, economical engines . . . truck-type clutches . . . sturdy 4-speed transmissions . . . deep, rugged frames . . . drive shafts, springs, internal hydraulic 4-wheel brakes and full-floating rear axles (including double reduction) that are brutes for heavy duty work and look the part.

* * *

Inspect, drive and compare these modern heavy duty Dodge Trucks. You will say that they are "all-truck"—that they look able, perform ably and are unusual values on any basis of comparison.

THE COMPLETE LINE OF DODGE TRUCKS RANGES IN PAYLOAD CAPACITIES FROM 1,200 TO 11,175 POUNDS—PRICED, CHASSIS F. O. B. DETROIT, FROM $435 TO $2695, INCLUDING 1½-TON CHASSIS AT $595

DEPENDABLE DODGE HEAVY DUTY TRUCKS

THE Merion is low enough in original cost to fit into the family budget and it will pay for itself many times over in the convenience it will give by furnishing a plentiful supply of clean hot water throughout the long winter months. Profits for you are fast and sure when you handle The Merion Heater. Its low price allows increased sales and quick turnover. Home owners cannot really afford to be without the convenience that Merion Heaters can give them. And you cannot afford to pass up the profit they'll give you.

JOHN WOOD MANUFACTURING CO., CONSHOHOCKEN, PA.

FOR 1931:

made possible by 1930 performance

$50 TO $600
PRICE REDUCTIONS
on
GENERAL MOTORS
TRUCKS

500 lbs. to 3,500 lbs.

GUARANTEED CAPACITY INCREASES
STRAIGHT RATING
ON 10 GREAT MODELS, 133 DIFFERENT TYPES

MODEL T-15: *Price reduced $50; straight rating capacity increased 1,100 lbs.—now ½-ton and 1-ton range . . . 130" and 141" wheelbases, 10 different types available . . .*

***Now* $645**
(TYPE 1501)

MODEL T-17: *Price reduced $70; 1-ton range . . . 130" and 141" wheelbases, 8 different types available — 7½' and 9' body lengths . .*

***Now* $675**
(TYPE 1703)

THIS starts the new year with a big piece of value-news for truck owners. Effective today, price reductions or capacity increases—*or both!*—bring higher value than ever, in 10 great General Motors Truck models: affecting 133 different types of modern haulage and delivery equipment. Increased capacities mean greater earning power per truck. It is made possible by what happened in 1930. Lowered material costs were coupled with production savings. And it is a General Motors Truck policy to share such advantages with truck owners. So, more than ever, it's going to pay every truck owner to find out what General Motors Truck offers *before* he buys! See these trucks today. Try them out. Ask men who own them about the extra earning ability designed and built into them. Start 1931 with delivery or haulage equipment that can do a real share in building your business and profits!

(All prices: Chassis, f. o. b. Pontiac, Mich.)

A GENERAL MOTORS VALUE!

MODEL T-19: *Price reduced $150; 1½-ton range . . . 130", 141" and 152" wheelbases—22 different types available—7½', 9' and 10½' body lengths . . .*

***Now* $745**
(TYPE 2201)

MODEL T-90 (*six wheeler*): *Price reduced $600; 5-7½-ton range . . 185¼", 201" and 220" wheelbases, 7 different types available . . . Brown - Lipe over - and - under drive auxiliary with 4-speed main transmission standard (12 speeds forward, 3 reverse).*

***Now* $5285**
(TYPE 9001)

GENERAL MOTORS TRUCK COMPANY, Pontiac, Mich. (*Subsidiary of* Yellow Truck & Coach Mfg. Co.)
GENERAL MOTORS TRUCKS, YELLOW CABS and COACHES
Factory Branches, Distributors, Dealers—in over 2000 principal cities and towns
(*Time payments financed through* Yellow Manufacturing Acceptance Corporation *plan, at lowest available rates*)

This year will be generous to those plumbers

who are generous with themselves

IN order to do this—and do it right—it's necessary first of all to put yourself in your customer's shoes. This applies to everything you sell, or service you render. Take the case of a hot water heater.

As the customer in need of a real hot water service—you ask yourself if the following advantages in a hot water system aren't just the advantages *you* are seeking: "Hot water—all you want of it—at any time you want it." That's the big thing.

Then—it must also be *clean* hot water—for half the joy of having hot water is lost if it's muddied with rust or sediment.

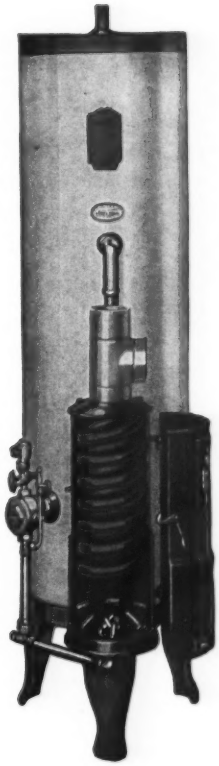
Then—the equipment must be able to give long, dependable service—in other words, you're not going to feel just right, are you, if the tank needs replacing six months later?

And, lastly—you'd like to get a heater that doesn't run into too much money.

These are the major wants that will govern a high percentage of hot water heater sales this year—*and the Hotstream fulfills them in a plus-measure.*

Putting yourself now, back into your own shoes again—the first thing to do is to find out immediately all about the Hotstream proposition. In doing that you're being generous with yourself—for it *is* an unusually real opportunity. Write today.

THE HOTSTREAM HEATER CO.
"Makers of Heaters that Heat"
CLEVELAND, OHIO



No. 20 SA
List Price, $66
Complete

EVERYTHING FAVORS THE HOTSTREAM

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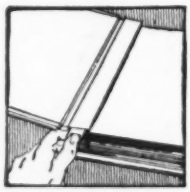
THE HANDY SPEEDLOK
Domestic Engineering Catalog Binder

Especially designed for the standardized catalog page adopted by the plumbing and heating industries

The SPEEDLOK is a quick operating catalog binder designed to fit reprints of catalog pages in "Domestic Engineering Plumbing and Heating Catalog" as well as all other catalog pages that conform to the standards adopted by the plumbing and heating industries.

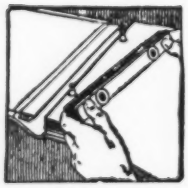
Easy and speedy operation are special features of this binder. A slight pull on the concealed bar under the top cover unlocks mechanism when sheets are inserted. Equipped with bar for removing sheets when changes are made.

Minimum capacity 1¼ inches. By simply unscrewing extension posts capacity can be extended to 2¼ inches. Works perfectly for all requirements—either a few sheets or filled to capacity.



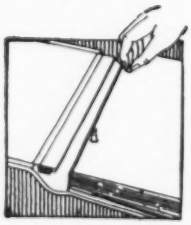
Covers are bound in heavy black Levant Grained Fabricoid, semi-flexible, very durable and attractive looking.

To unlock Binder—Pull out slide bar in top wing. Top cover will immediately fall back.



To lock Binder—bring top wing back over the posts—be sure posts fit in the holes in the top wing — then push in slide bar.

Separate the sheets where desired and slip sheets off the posts. Take out sheets or put in new ones as desired. These three moves take but a few seconds. Each operation is a natural one.



To increase or to decrease the capacity of the binder is a simple operation. The two posts are so constructed that they can be easily raised or lowered to meet the height requirements. Binder posts can be extended from 1¼ inches to 2¼ inches.

Plain White 16 lb. Bond Sheets Punched to Fit Speedlok Binder

Quantity	100	500	1000
Price	$1.00	$3.00	$5.50

Prices for larger quantities quoted on application.

For Plumbing and Heating Contractors—

Many master plumbers and steamfitters assemble working catalogs from standardized catalog sheets filed in binders.

Domestic Engineering is in position to furnish without charge, upon request, loose sheets—which are reprints from catalog pages appearing in "Domestic Engineering Plumbing and Heating Catalog"—of several hundred manufacturers. They are standard catalog page size—10⅝ x 8½ inches — are printed on a good grade of light paper and punched according to the standard adopted by the plumbing and heating industries. These sheets fit the SPEEDLOK binder.

For Jobbers' Salesmen—

The loose-leaf system reduces to the minimum the bulk and weight of catalog material required by the salesman. Only matter actually required for selling purposes need be carried in the binder. It does away with the necessity of carrying entire catalogs, booklets and circulars of various sizes and shapes.

Salesmen using the loose-leaf system have a great advantage over men not using this equipment — to say nothing of the added convenience, time and labor-saving features.

With a modernly equipped loose-leaf binder, the salesman can present his products in a more comprehensive manner than it is possible to accomplish by the old methods. Having all his material up to date in compact form and easily available, he can show latest specifications, answer questions or quote prices more readily.

When orders for binders are accompanied by requests for catalog reprints the binders will be equipped with the sheets desired and shipped complete.

Write for full details regarding loose sheets and binders.

Price of binder—$3.00. Prices on quantities on application.

DOMESTIC ENGINEERING

1900 Prairie Avenue *(Catalog Department)* **Chicago, Illinois**

Fig. D-369

Paragon Straight Stream Bubbler, with vitreous china bowl.

CENTRAL-PARAGON BUBBLERS ILLUSTRATE *THE CENTRAL IDEA* THAT THERE IS NO SUBSTITUTE FOR QUALITY

TYPICAL of the character evident in every Central Fixture, and engineered into every minute part, are the Central-Paragon Bubblers shown on this page. Substantial, beautiful, correctly proportioned, accurately designed and wrought, these Crome-and-china fixtures are distinctively modern and perfectly, permanently efficient. The use of Paragon ball-bearing Self-closing Valves with crome plated renewable seats heightens their quality. To see Central-Paragon Bubblers in a building is to deduce that superior standards prevail down through the unseen details of construction.

Fig. D-370

Paragon Combination Angle Stream Bubbler and Glass Filler with Vitreous China Bowl.

Paragon ball-bearing self-closing valves, crome plated renewable seats, combined volume control and shut-off. Connection 3/8-in. female. Crome plated finish. Bowl—6-in. diameter vitreous china.

Central Fixtures are displayed and sold by leading wholesalers

CENTRAL

BRASS MFG. CO.

CLEVELAND OHIO.

NOTHING PREVENTS A "TOLEDO" FROM DOING THE JOB WELL

Even though the pipe that is to be threaded or cut lies deep in the ground or under the concrete floor, "TOLEDOS" do the job easily and efficiently. You will be well satisfied with "TOLEDOS." Thousands of pipe tool users are buying "TOLEDOS" and laying their pipe threading and cutting worries aside. "TOLEDOS" comprise the fastest, most efficient and easy working hand and power pipe machines on the market today. There is a "TOLEDO" for all sizes from ⅛-inch to 12-inch inclusive. Write for complete catalog on "TOLEDO" tools to The Toledo Pipe Threading Machine Co., Toledo, Ohio.

"TOLEDO"

TRY "TOLEDOS" IF YOU DESIRE TO INCREASE YOUR THREADING AND CUTTING PROFITS

DOMESTIC
ENGINEERING
JANUARY 24, 1931

Our Industry

"Here's our statement. It shows a profit and if it was written up in your paper it might stiffen the backbone of some contractors so that they would get a profit on every job they do."

♦ ♦

Possibly you saw this comment and statement of a year's business from a western plumbing and heating contractor on page 38 of our January 10 issue.

♦ ♦

One reader writes us "I would like to have a visit with this company. I am making a personal matter out of this and would like to ask you to get permission of those owners for you to tell me who they are and where they are located. I feel that I would be willing to spend quite a little sum just to have a visit with men that are really making a nice profit. I have done a nice business this year, increased my volume and have made a fairly good profit, but would like to find a way to step the profit up a couple or three more points or else cut the overhead down."

♦ ♦

This is typical of the plumbing and heating contractor—not the one upon whom so many critics pile the faults of the industry—but the one who is building up the distributing power of the retailer-contractor, at a rate which too few manufacturers, wholesalers and even brother contractors recognize.

♦ ♦

From the vantage point given by the editorial rooms of DOMESTIC ENGINEERING—the central exchange through which passes both the best and the worst of the industry's deeds and misdeeds—we can see the plumbing and heating contractor in his true light.

♦ ♦

Not the contractor of whom there are still too many, whom others belittle because of his unbusinesslike methods—it does not require the services of a detective to find similar unprogressive types in the wholesaling and manufacturing branches.

♦ ♦

But the contractor who is alert to today's needs, is picking up rapidly an ability to sell more and better goods, is leaving off volume and profitless competitive work for the selling of better merchandise, of specialties and of remodeling.

♦ ♦

Like the reader quoted above he is willing to spend the time and money to learn something from others which will allow him to step up his profit a couple of points.

♦ ♦

It is unfortunate that so many speakers and writers trained in the easy school of free criticism still continue to give out inspirational messages which in general tell us that the contractor is the brake on the industry but may wake up sometime.

♦ ♦

These critics should open their eyes to the fact evident on all sides that an increasing number of contractors are daily setting up a better business record than many or most of their critics.

♦ ♦

Contractors everywhere are asking for advice and best of all many of them are acting on this advice. The industry can and should build on these men as its foundation.

◆

Merchandising is simply education, that is, educating the customer as to what the product will do for him—

HARRY M. HART

"I have a plumbing job in the country which is the first job, in eleven years, which has failed me. The septic tank never has had the bacteria working in it and when the sewage runs into the tank the paper comes to the top while the solids settle to the bottom. The whole system has become clogged. Will the tank work if I take out the trap and vent the tank?" W. I., Iowa.

"I have been doing the plumbing and sewage disposal work where cap rock ten to twenty feet thick covers the surface with sometimes a few inches of fine sand on top. Underneath is watersand from which the drinking water is secured. How about the sewage disposal under these conditions?"

C. A. F., Seminole, Okla.

Wisconsin University

By
J. P. SCHAENZER

Fig. 1—The University of Wisconsin truck, which has toured through the state giving practical demonstrations in each county on the necessity of sewage disposal systems and on the importance of having better sanitation facilities

PROTECTING the health of the family is the most important reason for modernizing the rural home. Proper and safe sewage disposal from the kitchen, laundry and bathroom assist materially in safeguarding the health of the entire rural family. An adequate sewage disposal system also prevents the contamination of the water supply.

A plentiful supply of safe water should come first. In order to secure the greatest benefit of the water system, it becomes necessary to provide some means of removing the household wastes. The most satisfactory method is through the installation of a septic tank. Because larger quantities of water are being used in modern homes with complete bathroom facilities, the disposal of sewage becomes a more serious problem and there is a greater possibility of contaminating the water supply. For this reason, primarily, a septic tank with a disposal system should be installed.

An automatic water supply system and safe sewage disposal will add much comfort to each member of the family. These are considered essentials of modern home life and no longer a luxury. It will perhaps be of most value to the housewife in relieving her of a great deal of work and drudgery. These two farm conveniences will also save her a great deal of time, which she perhaps may use to better advantage, recreation or rest.

"We farmers have been modernized" is a statement which summarizes the consensus of opinion in many rural sections. It shows that in large part the reluctance to adopt new methods and standards has been overcome. The plumbing contractor should further encourage and actively engage in rural modernization work. The reader questions at the top of the page indicate what is encountered and this article covers the answers to the problems.

The Cesspool

In the disposal of sewage one should guard against the possibility of creating either a private or public

"Is it advantageous to have grease running into a septic tank? It always has been my opinion and understanding that kitchen sink grease running into a septic tank would destroy the septic action of the tank, but I am told now that I am mistaken and that grease is beneficial to the action of the tank."

C. A. J., Texas.

"We have had some discussion concerning the effect of running the waste from a water softener into a septic tank and it is my belief that the briny water would be destructive to the bacteria. It also has been contended that too much soap from the laundry trays would have the same effect. Kindly advise us on this matter."

G. W. W., Indiana.

Makes Sales Opportunities for Farm Sewerage Systems

by equipping the truck, shown on the opposite page, and by staging demonstrations at representative locations in each county in the state. This great educational movement, and similar campaigns in other states, has promoted an appreciation of the value and desirability of sanitation systems. It remains for the plumbing contractor to follow through with this lead.

nuisance. During the past, the cesspool has been used very widely in disposing of household wastes. This method is in many cases unsafe and unsanitary. The cesspool is a hole usually eight or ten feet in diameter and about eight to twelve feet deep. Walls are built up of loose stone and covered with concrete, including a manhole and cover. As the sewage enters the cesspool, it seeps into the ground. Naturally, the solids remain behind. If the soil is sandy or gravelly, it may work satisfactorily for a long time. It is possible that the soil may be open in one direction due to crevices in a layer of rock. In this case, rather large quantities of unpurified sewage may travel a long way and perhaps contaminate the water supply and even spread disease. The subsoil may be of clay which will prevent the absorption of the sewage. This may become so serious as to cause the cesspool to overflow or necessitate pumping out the contents. What to do with it after it is removed presents another problem.

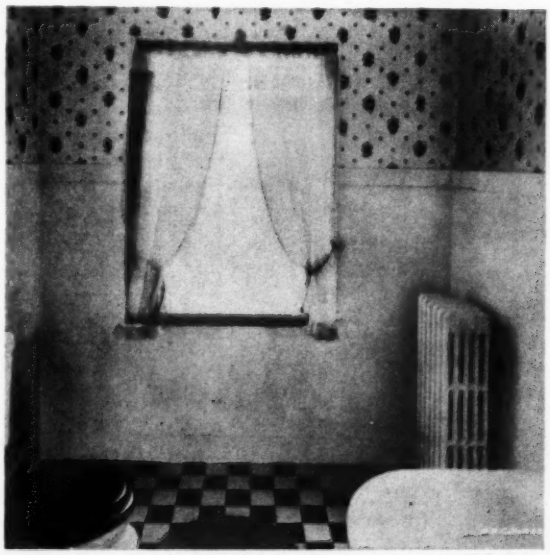


Fig. 2—Here is a bathroom installation on a modernized farm in Illinois. Where this was once considered a luxury, it is now considered a necessity

Another method known as the dilution process whereby the wastes are discharged into a running stream is still older than the cesspool. Many epidemics of serious and fatal diseases have been traceable to this method. Purification of the sewage in this case is dependent upon light, air and the running water.

The Septic Tank

The septic tank is the most modern method and the safest. It is a water tight, covered receptacle and unventilated. The sewage is discharged directly into this for the purpose of liquefying and breaking up the solid material, as well as deodorizing it, and thus making the final disposal more simple and sanitary.

Due to the large content of the septic tank, the flow of sewage is negligible. For this reason, the solids drop to the bottom of the tank. Here they are acted upon by bacteria known as anaerobic bacteria. They flourish especially in the absence of air and light. Their work

Fig. 5—The modernization of the farm is doing away with this insanitary arrangement which no longer should be tolerated

is to break up the solids into liquids and gases. The gases naturally rise to the surface. In doing so they carry with them small particles of floating material which forms a scum on the entire surface. This assists further in excluding the air and light and thus making it a more favorable place for their action. This scum should not be disturbed and for this reason, elbows or tees should be used in the sewer pipe for admitting and discharging the sewage into and out of the tank respectively.

It is not possible to change all of the solids to liquids and gases. Toilet paper and some of the other solids are not soluble and so accumulate at the bottom of the tank. This material is known as sludge and has to be removed from the tank occasionally.

Location of the Septic Tank

In selecting the location of the septic tank, consideration must be given to the following factors:

1. The distance of the tank from the house.
2. The depth and slope of the inlet of the tank.
3. The danger of seepage and contamination.
4. The depth of the earth necessary to cover the tank.
5. The possibilities of disposing of the effluent.
6. The depth may depend upon the water level of the soil, character of the soil and presence of hard pan or rock.

The most desirable distance of the tank from the house is about 2 ft. If this is not possible, the distance should never exceed 50 ft. There will be less possibility of clogging the inlet pipe by having the tank close to the house. Four-inch vitrified tile or sewer pipe with smooth concreted joints should be used. The best slope in a pipe carrying sewage is ¼-in. per ft. The slope should never be less than ⅛-in. per ft. By placing the tank near the house, the sewage is chilled very little as it flows through the pipe to the tank.

The distance from the tank and disposal system to the water supply should be at least fifty feet and preferably one hundred feet. It is desirable to have the slope of the land and the direction of seepage away from the well or spring. Under these conditions, there is little danger of contamination.

The depth of the earth covering the tank does not

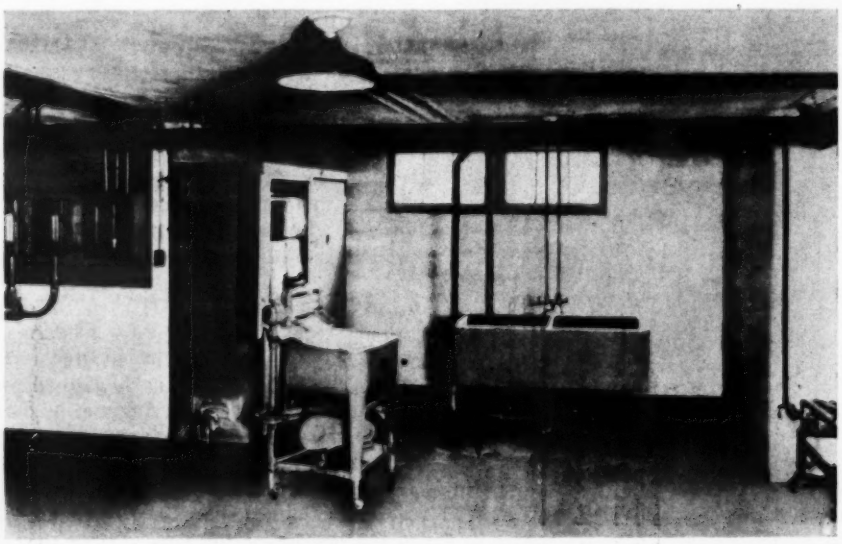


Fig. 4—This, added to the kitchen and bathroom plumbing facilities, makes plumbing convenience in the farm home complete. However, large quantities of water should not be diverted into the septic tank

Fig. 3—Another part of the modernized farm. In order to secure the greatest benefit of the water system, it becomes necessary to provide some means of removing the household wastes. The most satisfactory method is through the installation of a septic tank

need to exceed 2 ft. This is enough to keep a tank in splendid working order, even during the winter months. With such an arrangement, the bottom of the tank is about at the same depth as the cellar floor. If the laundry is located in the basement, or if one wishes to drain the cellar into the system it becomes necessary to dig a hole twelve feet deep or more. This will add to the expense of the installation and it may be preferable to place the tank on lower ground and farther away from the house.

The location of the tank also depends upon the proximity of the absorption area. Due consideration should be given to the size and topography of the plot, the character of the subsoil, orchard or shade trees and the presence of rock or hard pan.

The Size of the Septic Tank

The inside dimensions of the tank as recommended by the University of Wisconsin, are 3 ft. wide, 8 ft. long and 6 ft. deep. This will take care of 15 people and is not too large for a family of two using a liberal amount of water. The depth of the sewage in this tank will be about 5 ft. This allows for a large accumulation of sludge and so does not need to be cleared out so often. A working capacity of 4 cu. ft. per person per day is necessary. If a smaller tank is desired, it is preferable to cut down on the length rather than on the depth. The larger tank is somewhat more expensive. This expense, however, is not serious as it involves only a little more material to construct the tank and a trifle more labor in digging the hole.

The sewage should be retained in the tank for a period of 2 or 3 days so as to allow for proper bacterial action. An allowance of 50 percent of the capacity should be made for the accumulation of sludge. This will help to reduce the number of times it is necessary to clean out the tank. The tank should be too large rather than too small. If too small, the sewage may not be thoroughly digested and thus give off offensive odors. In all cases, the tank should be large enough to take care of future demands.

Types of Tanks

One and two chamber tanks are in use. Both types are giving entire satisfaction. The one chamber type with a baffle across the center to obstruct the flow of the sewage is recommended because it is cheaper to install. Many single chamber tanks have been installed in the states of Wisconsin, California and Colorado with good results.

The two chamber tank, provided it has a greater capacity will be more efficient. Such an installation may be necessary where the disposal of the effluent is a serious problem. Automatic siphons are sometimes installed in the second chamber to remove the effluent whenever the chamber is full. All tanks should be equipped with a manhole.

Is a Grease Trap Necessary?

Grease should not be allowed to enter the septic tank, as it hinders the bacterial action, may clog the tile and saturate the absorption area and thus prevent the drainage of the effluent. The grease trap should be located between the sink and the septic tank, as most of the

grease entering the sewage system comes from dish water. The grease trap is a chamber which is large enough to allow the water to stand in it so that the grease may rise to the top. It is usually necessary to remove the grease and clean out the trap about twice a year.

Disposing of the Effluent

The dry well is used very extensively and gives good satisfaction. Its construction is the same as for the cesspool which was described earlier.

Occasionally, the effluent may be disposed of by running it into a road ditch, ravine or stream. Every precaution should be taken, however, not to create a public or private nuisance. The larger the river, the less danger there is of pollution. Discharging sewage into a lake is prohibited. In all cases, state laws and local ordinances pertaining to sewage disposal should be investigated. Before completing the installation, it may be worth while to write the State Board of Health and thus avoid trouble in the future.

A tile drain absorption system is a very effective method of disposing of the effluent. This is especially desirable in deep, heavy clay soils, in a soil with a high water table or where hard pan or rock are near the surface. The main tile line coming from the septic tank should be 5 in. in diameter. The laterals should be 4 in. in diameter and if possible, 10 ft. apart. This will hasten percolation and also bring about better aeration of the effluent and soil. By placing the tile at a depth of 2 to 3 ft. the best results are obtained. If placed too close to the surface, difficulty is encountered due to frost. If placed too deep, proper aeration and absorption is oftentimes difficult. A total of 500 ft. of drain tile laid with ¼-in. joints is considered enough. A minimum slope of 2 in. per 100 ft. is required. The upper half of each joint should be covered with pieces of broken tile of a larger size or with pieces of tar paper. This will prevent sand or earth from entering the tile line. A rule oftentimes used to determine the amount of tile necessary is to lay from 20 to 30 ft. per person in sandy soil and from 30 to 50 ft. in clay or heavy soil.

Removing the Sludge

If the septic tank is of the proper size and depth, which is very important, it will not be necessary to remove the sludge oftener than once in five or six years. In many cases, no removal is necessary for a much longer period. A rule that may be followed is that when the sludge occupies one-fourth of the liquid volume of the tank it is best to clean it out. The easiest way is to pump it out and haul it on a field to be plowed under. It may be well to occasionally measure the thickness of the scum. This may be accomplished with a stick. If the scum gets to be eight inches in thickness, it is time to clean the tank also.

Things for the Owner to Avoid

Advise the owner to keep the tank working. This is especially important during the winter months. Standing idle or a lack of enough warm water from the house may cause the tank to freeze up. If necessary, the tank may be covered with straw to give additional protection against frost.

Large quantities of water, such as rain water from house roofs, should never be diverted into a septic tank. If the cellar is drained into the disposal system it should go around the tank rather than have the water flow through it. Too much water at one time is apt to flush the tank and perhaps decrease bacterial action.

Strong lye solutions, acids and disinfectants should be kept out of the tank. They are apt to destroy the useful bacteria and thus retard the action inside of the tank.

Selling Points

When an adequate water supply system is installed, it becomes unnecessary to carry in pails and pails of water for drinking, cooking, washing the dishes, washing clothes and baths. When supplemented with a sewage disposal system, it relieves the family of carrying all of the waste water out again. Better health is insured because it does not necessitate going from a warm home to a cold outdoor toilet in the winter time. Much more water is used which means sanitation and cleanliness. Many hours of time and exceedingly hard work are saved which means more comfort and a happier and healthier family.

New Orleans Master Plumbers Make Sales Record

"The gas company in New Orleans were not cooperating with the master plumbers," reported R. G. Thomas at the conference a few days ago of the presidents and secretaries of contractor associations, "because they said the plumbers were not salesmen. We had a conference with them and they tried it out for thirty days. During that time, with six salesmen on a commission basis, they sold 34 water heaters. The master plumbers sold 165 heaters in the same time, showing that they were salesmen.

"In the following two months, the master plumbers sold 468 heaters against 64 for the utility company. They are now more than satisfied that the plumber is a salesman and they are continuing their contract with the plumbing contractors.

"Today there is a wonderful feeling between the master plumber and the utility company in New Orleans. We approached them too often in the wrong way. They realize that their merchandising sales form a boomerang often. If you men will approach the public service companies in your cities in the right spirit, as business men, you can nearly always make an agreement with them.

"Every week the utility company in New Orleans takes a half-page in the leading papers of the city, stating that they are selling heaters through the contractors, whose names are listed in the advertisements. They carry the line in their advertising: 'These heaters are installed only by licensed master plumbers.' In the event that a home owner says she has no regular plumber, the local association is telephoned and asked to send a man down to figure the job of installing the heater.

"It is clearly proven that you can make contracts with the public service company if you approach them in the right way. After these heaters were sold in New Orleans, they found that after they had paid out $3400 to the master plumbers, the cost of selling all those heaters showed a loss of $10.50, which covered advertising and everything else."

The owner of the modern home of today demands not only heated air but also moistened air

How Much Water Will Air Drink?

By ARA MARCUS DANIELS

We are approaching the time of the year when houses are closed, cracks are sealed and cold air infiltration is reduced to a minimum. In a very short time, the air in the average home, accordingly, will be as dry as that of a desert. To offset this condition moisture will be taken from the furniture, the building and even the occupants, with consequent ill effects, unless humidifying equipment supplies the need. The contractor's opportunity lies in selling and installing this equipment, the reason for which is described herewith.

AIR in the home has an awful thirst. Like the parched throat of the traveler on the desert plain, it is ever seeking sources from which to quench that thirst. Reaching out to satisfy its craving, it draws from furnishings and occupants alike, leaving the furnishings to "squeal and croak" and the occupant to "cough and fume."

Humidification means simply to give the air patient the proper amount of water for its temperature. What is the proper amount? Before going into this question minutely, certain terms should be understood.

Humidity—Water Vapor in Air

A certain amount of moisture or water vapor is almost always present in the atmosphere. The greatest amount of vapor that may exist in the air depends upon the temperature and varies from 0.00007 lb. per cu. ft. at 0 deg. Fahr. to 0.00282 lb. per cu. ft. at 100 deg. Fahr. Rainfall is controlled by the degree of saturation of the air and health is also influenced.

Humidity is the water vapor or moisture mixed with the air in the atmosphere. The weight of water vapor a given space will hold depends entirely upon the temperature and pressure. It is entirely independent of the presence or absence of air.

Absolute Humidity

This is the weight of a cubic foot of water vapor at a given temperature and percentage of saturation. It is usually expressed as grains per cubic foot.

Relative Humidity

The moisture-carrying capacity of air depends on its temperature. Warm air has a much greater capacity for moisture than cold air, although it may feel drier. It is the relation between the actual amount of moisture in the

air at a given temperature and the amount of moisture that the air could hold at that temperature that causes it to feel dry or moist.

Consider a piece of cloth held in a vertical position and sprinkled with water. No water will drip from the cloth until it is completely saturated, holding all the water that it is capable of holding. So it is with air. When the air is so laden with moisture that water is deposited in the form of dew the air has reached the point of complete saturation, known as the dewpoint. Then the relative humidity is 100 per cent. If air contains seven-tenths as much water as is present when it has just reached the dewpoint, its relative humidity is 70 per cent. If a room having a temperature of 40 deg. Fahr. with air at 70 per cent relative humidity be warmed up to 70 deg. Fahr., the percentage of saturation decreases with the increase of temperature, since the warmer the air the more moisture it is capable of holding in suspension. Unless more moisture is added as the temperature is increased the percentage of saturation will be reduced, so that whereas the air at a lower temperature held seven-tenths as much as it was capable of holding, under the higher temperature it holds only two-tenths as much. Then its relative humidity would be 20 per cent.

Thus, relative humidity is the ratio of the weight of water vapor in a given space to the weight which the space will hold when fully saturated at the same temperature, and is expressed as a percentage. The term humidity as usually employed signifies relative humidity.

Dewpoint

This is the temperature at which saturation occurs for a given weight of water vapor. It is the temperature at which any reduction in temperature would cause condensation of some of the water vapor as dew particles. Air containing any amount must have a dewpoint, since the temperature can be lowered enough to cause condensation.

Air Conditions and Their Effect Upon Health and Comfort

The temperature of air controls the amount of moisture which it is capable of holding, but temperature is not an indication of the amount of moisture actually contained in the air. For this reason warm air may be dry or moist and cold air may be dry or moist.

Dry air absorbs moisture even to the extent of evaporating moisture from our bodies, which causes an unpleasant chilled feeling. The cooling effect produced by this rapid evaporation makes it possible to stand very high temperatures when the air is dry. Our bodies however, require certain amounts of moisture and when moisture is lacking in the air we breathe, warm air will evaporate moisture from our systems and often subject us to diseases which can be traced to dry air conditions. While dry air is beneficial in the treatment of certain forms of tuberculosis, under normal living conditions, it is not favorable to health and comfort.

Relative humidity is the ratio of the weight of water vapor in a given space to the weight of the water vapor which the space would hold when fully saturated at the same temperature

Moist air to a certain degree is more healthful than dry air, and, except for extreme conditions, more comfortable. There is a zone of comfort wherein the percentage of moisture bears a direct relation with the dry bulb temperature (as read on the thermometer). The comfort zone ranges from 59 deg. Fahr. (dry bulb) with 78 per cent relative humidity to

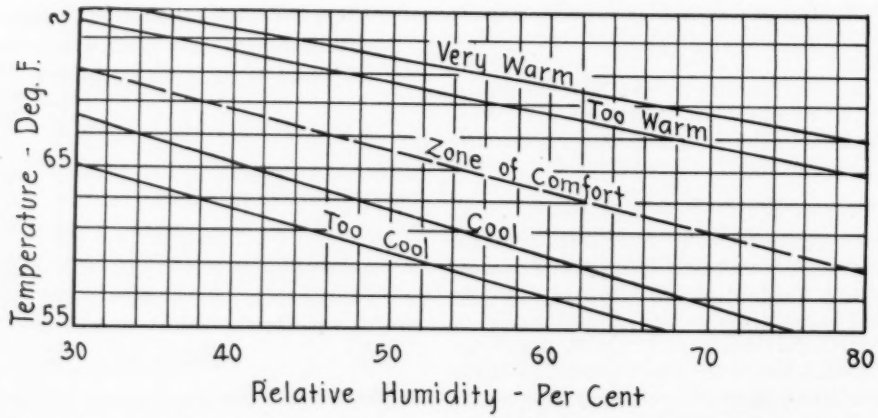


Fig. 1—The comfort zone chart. When the relative humidity is 40 per cent, seen on the horizontal scale, by reading up to the broken line labeled "Zone of Comfort" and then to the left, the comfortable temperature for that humidity is found to be about 68.5 deg. Fahr

70 deg. Fahr. (dry bulb) with 30 per cent relative humidity, that is to say, one would feel as comfortable with dry bulb temperature of 59 deg. Fahr. and a relative humidity at 78 per cent as when the temperature is at 70 deg. dry bulb and a relative humidity, 30 deg. Fahr.

Fig. 1 illustrates the comfort zone, chart of Dr. E. Vernon Hill. Moist air is also more economical for fuel requirements. The rate of evaporation for moist air is negligible, consequently there is no feeling of chill to be overcome due to evaporation. Living conditions are more healthful and comfortable with air at a temperature of 60 deg. Fahr. to 65 deg. Fahr. if the proper amount of moisture is present than with air at 75 deg. Fahr. when the proper amount of moisture is lacking. Fuel is also conserved because of the lower temperature that may be maintained and the fact that moist air retains heat longer than dry air.

The ideal heating system is one that provides pleasant and healthful atmospheric conditions by reproducing as nearly as possible within the home favorable temperature zone conditions. These conditions are closely approximated when the temperature of the air is maintained at 69 deg. Fahr. and its relative humidity at 40 to 45 per cent.

When the temperature of the air indoors is maintained at other than 69 deg. Fahr., the relative humidity that should exist for the corresponding temperature may be found from Table 1.

As an example, at which relative humidity should the air be maintained for each of the following inside air temperatures, 66 deg., 70 deg., 72 deg., 75 deg.?

By Table 1 we may read:

For Inside Temperature of Deg. Fahr.	A Relative Humidity to be Maintained of Per Cent.
66	55
70	42
72	36.5
75	29.2

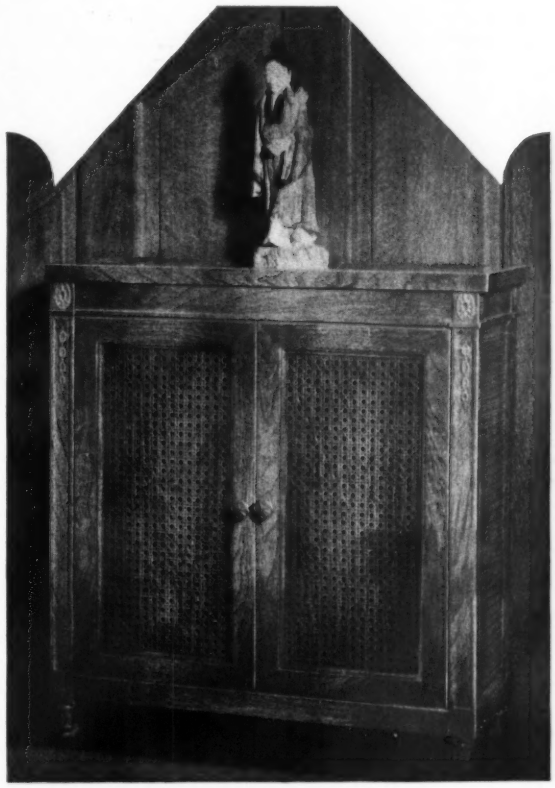
Condensation Formed on Windows as an Indication of the Relative Humidity of the Inside Air

On a cold day, condensation or vapor is often noted on the inside surfaces of windows of warm rooms. The fact that condensation forms on these surfaces is an indication that the inside air contains moisture, but it is not always an indication that the proper quantity of moisture is present.

Table 1
Relative Humidity for Various Temperatures

Temperature Deg. F. (Dry Bulb)	Relative Humidity Per Cent	Temperature Deg. F. (Dry Bulb)	Relative Humidity Per Cent
66	55.0	74	31.5
67	51.5	75	29.2
68	48.0	76	27.0
69	45.0	77	25.0
70	42.0	78	23.0
71	39.2	79	21.2
72	36.5	80	19.5
73	34.0	81	18.0

Air containing any quantity of moisture can be reduced in temperature until its dewpoint is reached, at which point it will deposit its moisture on surfaces of low temperature. This is what happens when condensation forms on the window. The air in the room has a temperature of approximately 70 deg. Fahr. and its moisture is held in suspension. As some of this air comes in contact with the inner surface of the cold glass, its temperature is reduced until its dewpoint temperature is reached. The moisture in this air is then condensed and deposits itself on the glass surface in the form of small water particles.



Dry air absorbs moisture even to the extent of evaporating moisture from our bodies, which causes an uncomfortable chilled effect. Various devices are employed to humidify

Table 2 shows the relative humidity (of the inside air) at which condensation forms on windows of single and double glass when various outside temperatures exist. In all cases it is assumed that an inside temperature of 69 deg. Fahr. is maintained.

Thus, if condensation forms on a single glass window when the temperature of the inside air is 69 deg. Fahr. and the temperature of the outside air is observed at 10 deg. Fahr., Table 2 shows that the relative humidity of the inside air is 23 per cent. This indicates that there is not sufficient moisture in the air to meet the conditions stated as desirable in Table 1. If the window had been of double glass instead of single glass, Table 2 shows that condensation would not form on the inside surface unless the inside air attained a relative humidity of 54 per cent. Thus, regardless of the amount of water contained in the air, its temperature can always be lowered enough to reach the dew point, with resulting condensation.

For example, it is noted that condensation forms on the inside surface of a window. The conditions are as follows: The temperature of the inside air is 69 deg.

Fahr., the temperature of the outside air is 20 deg. Fahr. and the window is single glass. What is the relative humidity of the inside air? Does the fact that condensation forms indicate that in this case the inside air is at proper relative humidity?

How the problem is solved: The given conditions are:

Condensation forms on windows—
Temperature of inside air, 69 deg. Fahr.
Temperature of outside air, 20 deg. Fahr.
Single glass window.

Under these conditions condensation will form on the inside surface of the glass when the relative humidity of the inside air is 30 per cent.

For an inside temperature of 69 deg. Fahr. the inside relative humidity should be 45 per cent, which is 15 per cent higher than the relative humidity found to exist when condensation forms under the given conditions.

Therefore, in this case the fact that condensation forms is not an indication that the inside air is at the proper relative humidity.

As another example, supposing that the window had been double glass and the other conditions the same, at what relative humidity would condensation form? In this case would the fact that condensation formed be an indication that the proper relative humidity was being maintained? Why?

The solution of the problem: The given conditions are:

Condensation forms on window—
Temperature of inside air, 69 deg. Fahr.
Temperature of outside air, 20 deg. Fahr.
Double glass window.

In this case condensation would not form until the inside air attained a relative humidity of 60 per cent, which is 15 per cent in excess of the requirement (45 per cent).

Again, the fact that condensation formed would not be an indication that the proper relative humidity was being maintained because the proper relative humidity could be maintained and no condensation would form.

Determining Relative Humidity by Using Dry Bulb and Wet Bulb Thermometers

The relative humidity of the air may be accurately determined by using a dry-bulb and a wet-bulb thermometer in conjunction with Table 3.

A dry-bulb thermometer is a thermometer ordinarily used for measuring temperatures. Its bulb is dry and fully exposed to the air.

A wet-bulb thermometer, as the name implies, is one the bulb of which is kept moist. A specially constructed wet-bulb thermometer is used for scientific purposes, but for the usual determination of relative humidity an ordinary thermometer may be used. Select a thermometer whose bulb is completely exposed. Around the bulb tie a piece of cheesecloth or other porous fabric in the shape of a small sack and saturate it thoroughly with water.

An instrument called a sling psychrometer is often used in conducting a test for relative humidity. This instrument consists of a dry-bulb and wet-bulb ther-

(Continued on Page 150)

Table 2

Percentages of Relative Humidity at Which Condensation Forms on Inner Surface of Windows

(Room Temperature 69 Deg. Fahr. for All Conditions)

Outside Temperature F. Deg.	Temperature of Inner Surface of Glass F. Deg.		Relative Humidity at Which Condensation Forms on the Inner Surface of Glass—%	
	Single Window	Double Window	Single Window	Double Window
−10	13	46	12	45
0	20	49	18	49
10	28	52	23	54
20	34	54	30	60
30	42	57	38	68
40	48	60	48	75
50	55	63	64	83
60	62	66	80	91
70	69	69	99	99

Univ. of Ill. Bulletin.

Table 3

Relative Humidity When Difference Between Dry and Wet Bulb Is Known

Reading of Dry Bulb Thermometer Deg. F.	Difference Between Dry and Wet Bulb (deg. F.)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	Relative Humidity (Per Cent)																				
60	94	89	83	78	73	68	63	58	53	48	43	39	34	30	26	21	17	13	9	5	1
61	94	89	84	78	73	68	63	58	54	49	44	40	35	31	27	22	18	14	10	7	3
62	94	89	84	79	74	69	64	59	54	50	45	41	36	32	28	24	20	16	12	8	4
63	95	89	84	79	74	69	64	60	55	50	46	42	37	33	29	25	21	17	13	10	6
64	95	90	84	79	74	70	65	60	56	51	47	43	38	34	30	26	22	18	15	11	7
65	95	90	85	80	75	70	66	61	56	52	48	44	39	35	31	27	24	20	16	12	9
66	95	90	85	80	75	71	66	61	57	53	48	44	40	36	32	29	25	21	17	14	10
67	95	90	85	80	75	71	66	62	58	53	49	45	41	37	33	30	26	22	19	15	12
68	95	90	85	80	76	71	67	62	58	54	50	46	42	38	34	31	27	23	20	16	13
69	95	90	85	81	76	72	67	63	59	55	51	47	43	39	35	32	28	24	21	18	14
70	95	90	86	81	77	72	68	64	59	55	51	48	44	40	36	33	29	25	22	19	15
71	95	90	86	81	77	72	68	64	60	56	52	48	45	41	37	33	30	27	23	20	17
72	95	91	86	82	77	73	69	65	61	57	53	49	45	42	38	34	31	28	24	21	18
73	95	91	86	82	78	73	69	65	61	57	53	50	46	42	39	35	32	29	25	22	19
74	95	91	86	82	78	74	69	65	61	58	54	50	47	43	39	36	33	29	26	23	20
75	96	91	86	82	78	74	70	66	62	58	54	51	47	44	40	37	34	30	27	24	21
76	96	91	87	82	78	74	70	66	62	59	55	51	48	44	41	38	34	31	28	25	22
77	96	91	87	83	79	74	71	67	63	59	56	52	48	45	42	39	35	32	29	26	23
78	96	91	87	83	79	75	71	67	63	60	56	53	49	46	43	39	36	33	30	27	24

Table Based on 30 Inches Barometric Pressure.

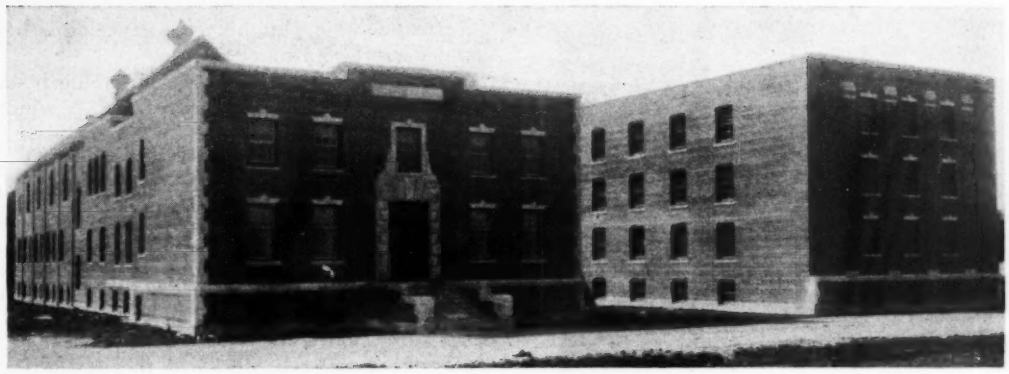


Fig. 1—The main requirement governing the plumbing installation in this jail was that it should last as long as the building. Although the structure appears to be two separate buildings, it is only one as will be seen by referring to the plan below

Canadian Inspector Describes Jail Installation

J. Smith of Winnipeg outlines features

A JAIL which provides accommodations for 226 inmates, recently erected at Headingly, near Winnipeg, Manitoba, presents a number of features of considerable interest, relative to its plumbing equipment.

The Headingly jail was built for the Province of Manitoba, Mr. Gilbert Parfitt being the architect for the province, and Cotter Bros., Ltd., of Winnipeg having the plumbing contract.

The institution itself is shown in Fig. 1. A special feature of the installation is the large quantity of 1½-in. pipe that was used. The lavatories were

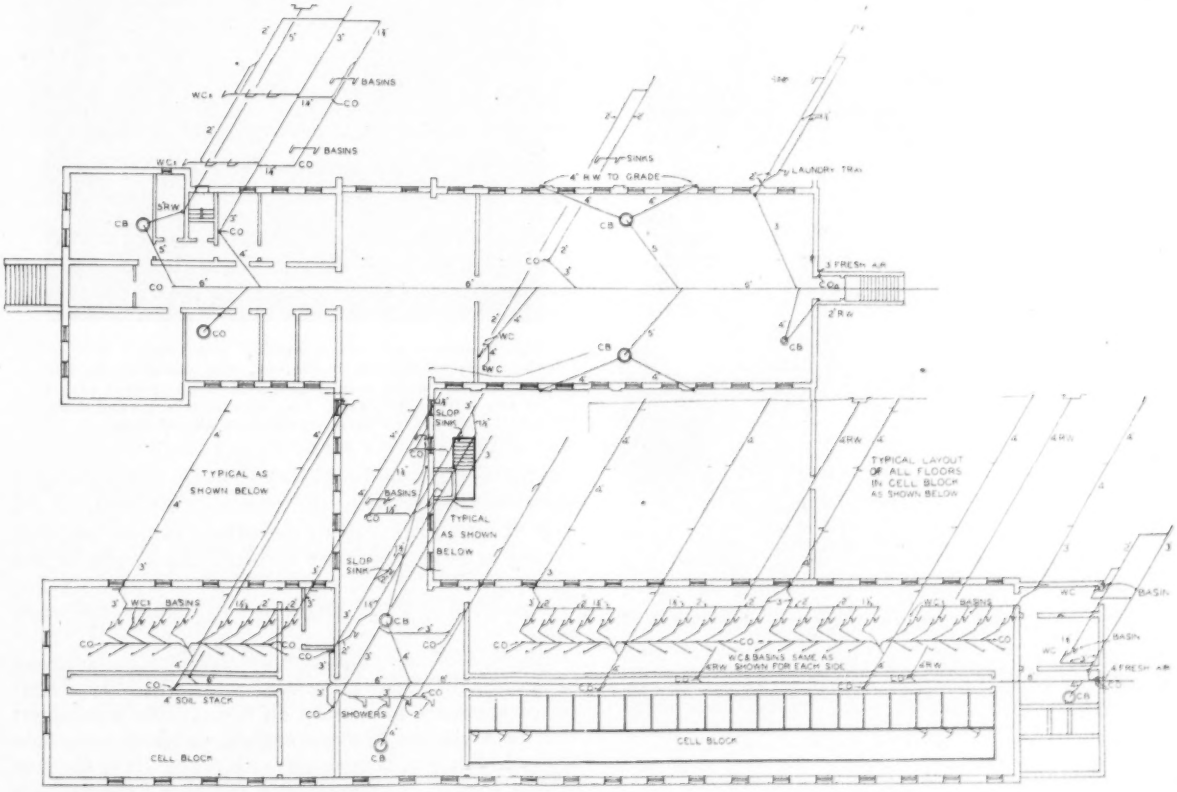


Fig. 2—This is the floor plan of the building with plumbing stacks and fixtures shown in elevation. It will be observed that whereas a double battery of water closets and lavatories is served by the main drainage line, only one side is shown with complete connections. This is for the reason that to show the other side on the drawing would be confusing

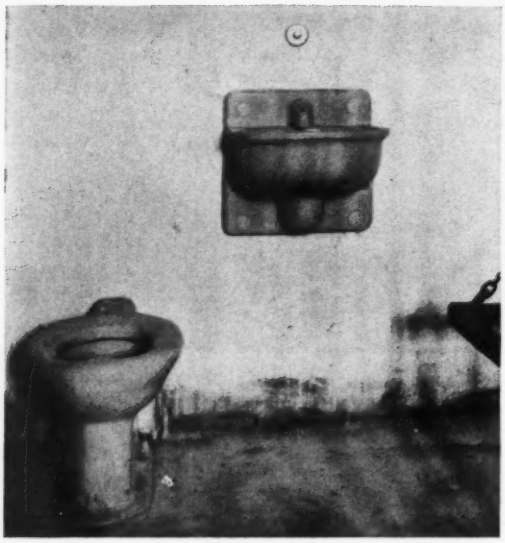


Fig. 3—In prison plumbing it is necessary to have fixtures as simple as possible. There can be no removable parts in the cells which will permit the inmates to tamper with them

served by 1½-in. wastes, and this was the smallest size of pipe installed.

The aim in installing the piping in this particular building, was to get a system that would last as long as the building.

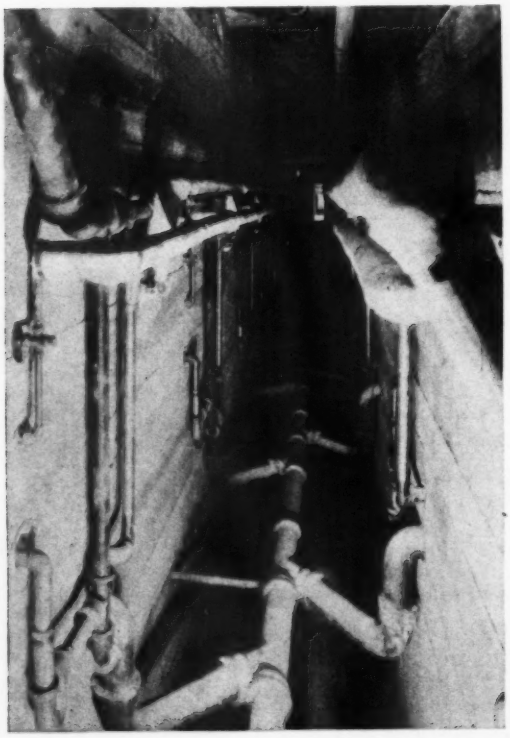


Fig. 4—In order to obtain a sanitary and permanent plumbing installation and at the same time keep as much of the system out of the cells as was possible, a pipe tunnel was designed as shown in this view. This indicates how both waste and supply connections were made

Permanency in plumbing construction is being demanded more and more.

A comprehensive idea of the plumbing installation can be obtained from a study of Fig. 2, which gives in the one illustration, the first floor plan, with a simplified elevation of each stack.

It would appear from Fig. 1 that there are two separate buildings. This is not so, as will appear from Fig. 2.

That part of the building in which the cell blocks are located, is four stories in height. The floor plan shown in Fig. 2 for the cell blocks, is typical of the other three floors.

For the small cell blocks at the left, a 6-in. main drainage line is used, and this increases to 8-in. for the larger cell blocks.

Reference to Fig. 2 will show that the main drain

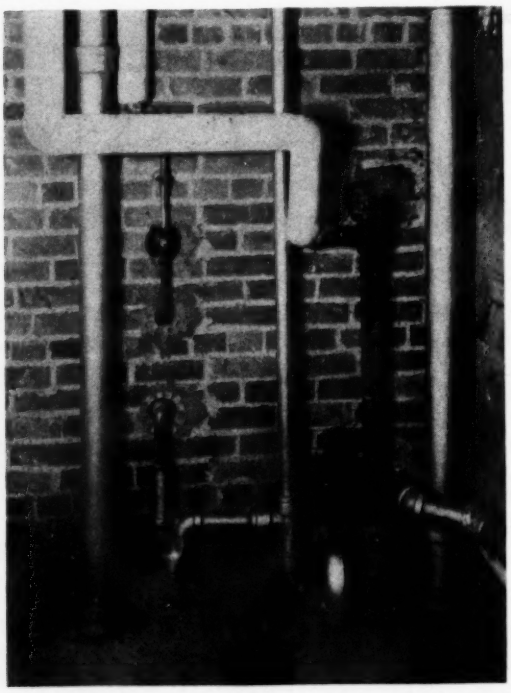


Fig. 5—These are the plumbing connections serving the fixtures installed in the two cells assigned for the use of condemned men, being somewhat typical of all of the cell connections. The special closet bend with the 1½-in. lavatory bend is noteworthy

for the cell blocks is carried in what is known as a utility tunnel between the two rows of cells. Each row of cells backs up to the utility tunnel, and this tunnel extends vertically through the height of the building.

Fig. 3 shows the plumbing equipment for each cell.

Because of the character of many of the inmates of such institutions as prisons and jails, it is a matter of necessity to conceal all fittings and equipment that possibly can be concealed, in order to overcome the possibility of tampering with them. It is for that reason that Fig. 3 shows only the bare fixtures. All traps and connections for both fixtures are located in the utility tunnel.

Main Drainage Lines

Fig. 4, which shows a view of this tunnel, will give a clear idea of the manner in which both waste and supply connections are made.

In addition to showing this detail, Fig. 4 shows the 8-in. main drain in the basement, also the main drainage line for the cells on the floor above.

Referring to Fig. 2, it will be observed that whereas a double battery of water closets and lavatories is served by the main drainage line, only one side is shown with complete connections. This is for the reason that to show the other side would be confusing and would actually give no additional information. Fig. 4 however, will clear up any question concerning this matter.

There are two cells at the right hand end of the building, for condemned men, and in Fig. 5 will be seen the plumbing connections for this cell, which

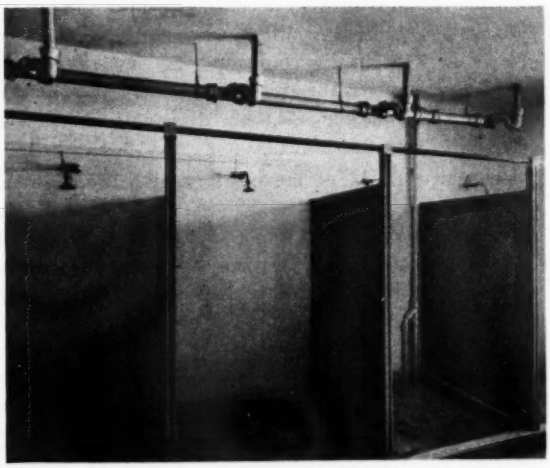


Fig. 6—The drainage line with traps and connections for the showers on the floor above is seen suspended from the ceiling. No attempt was made to conceal this work. The main vent stack for the showers, with a branch vent connecting into it is in view at the right of the picture

are somewhat typical of the connections for all cells. The special closet bend with 1½-in. connection for the lavatory is to be noted.

In Fig. 2, between the short and long cell blocks will be noted a 3-in. stack which carries four showers on each of the four floors. A photographic view of one of these groups is shown in Fig. 6. On the ceiling is seen the connections for the group of showers on the floor above. In the third shower stall will be seen the main vent stack for the showers, with a branch circuit vent connecting into it.

Fig. 7 shows the uppermost slop sink on a line of four of these fixtures. The main waste is 3-in., with 2-in. trap and 1½-in. vent.

In Fig. 8 is seen a pair of lavatories located in the administration building. It will be noted that they have a unit vent.

Venting Employed in Systems

Particular attention should be called to the venting that this system is provided with. It is done according to approved modern practice.

Each of the two main drainage lines is provided

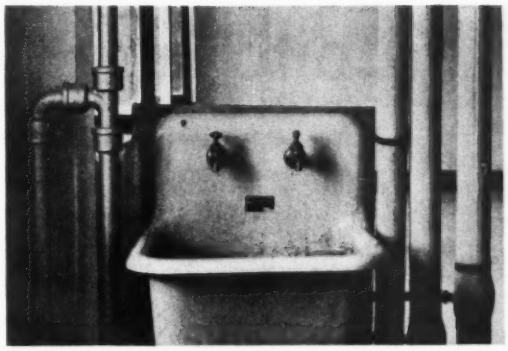


Fig. 7—This slop sink is on the top floor and, on the drawing, may be seen as crossing the center stairway. Note that the vent connection is made slightly above the highest level of the sink

with a main trap and fresh air inlet.

It will be noted that rain leaders are carried to a catch basin before discharging into the main drain, except in the case of those leaders which are brought down in the utility tunnel.

A list of the plumbing fixtures is as follows:—

226 cell water closets.
226 cell lavatories.
10 siphon jet water closets.
13 lavatories, cast iron enameled.
8 slop sinks, 20 in. x 24 in.
17 showers, with thermostatic gang control.
1 5 ft. 6 inch cast iron enameled bath.
2 kitchen sinks, 20 in. x 52 in.
2 laundry tubs.

The list of soil pipe and fittings is as follows:—

1,300	ft. of	1½-in.	soil pipe	340	1½-in. soil pipe fittings
1,100	ft. of	2 -in.	soil pipe	340	2 -in. soil pipe fittings
600	ft. of	3 -in.	soil pipe	300	3 -in. soil pipe fittings
1,100	ft. of	4 -in.	soil pipe	890	4 -in. soil pipe fittings
175	ft. of	5 -in.	soil pipe	20	5 -in. soil pipe fittings
220	ft. of	6 -in.	soil pipe	20	6 -in. soil pipe fittings
170	ft. of	8 -in.	soil pipe	14	8 -in. soil pipe fittings

The notable feature concerning the list of soil pipe and fittings is the large amount of each in the 1½-in. size.

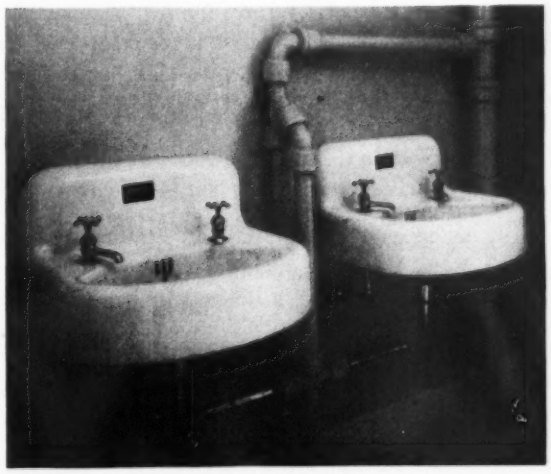


Fig. 8—These lavatories are located in the administration building. There is a considerable contrast between them and the cell fixtures shown in Fig. 3. It was not necessary to conceal the piping or make the installation tamperproof. This view illustrates a good example of a unit vent hook-up

Editorials

Selling Is Education

AT THE meeting of presidents and secretaries of associations held in Chicago, one of those attending said that he felt that the professions of selling and of plumbing were entirely different and should be kept separated. Issue was immediately taken with this opinion by a past president of the national heating contractor group.

Selling, he said, is education. It is the process by which the prospect receives from the contractor his own knowledge concerning the product he is trying to sell. When that educational process has been properly completed, said the speaker, the selling is done. And certainly, he concluded, no one knew more about those products than the contractor.

No doubt the general feeling about selling has come about through the efforts of a certain type of public speaker to make it seem a highly abstruse science. We have listened, perhaps, too often to men highly trained in psychology as they applied their abstract principles to what is in reality a very simple problem in human relationships. We have listened too often, perhaps, to men who were good salesmen, but not necessarily good teachers. These men, speaking from public platforms, have thrown a fog of mystery about something that we should do almost unconsciously.

In one of our editorials last year, we tried to liken the matter of selling to a fishing trip. Two or three friends decide to go fishing. They want a fourth to accompany them. What follows is not, essentially, different from what goes on when a sale is made. The fourth man is persuaded to take the trip because, his friends argue, he needs a rest, he needs to get out of the city, he needs a change, his health will be bettered, he will come back to his work refreshed and with improved efficiency.

Is there a man in the industry who has not on many occasions taken part in such a discussion? In every department of his life he has found it necessary to persuade some one to do something. The chances are that, on occasion, he has made an impassioned address in his local association, or lodge, in support of a measure he believed necessary.

All he has done on these occasions is to lay his thoughts before others. And that is all there is to be said about selling. He knows what there is to be known about the products he handles—he has installed and serviced them. He knows how they will serve the home or other type of building. It is quite likely that if he sees clearly the service those products will render the prospect, and he talks about them persistently, in a sincere and straightforward manner, he will make sales.

As the speaker mentioned said, all he has to learn is that this knowledge of his is of value in selling. That simple fact is apparent, once the supposed need for "a bag of tricks" as essential to selling, is set aside by a common sense viewpoint of the matter.

"Who Has the Bullets?"

ANOTHER remark made at the conference of presidents and secretaries deserves repetition here. One of the speakers, having referred to a state code and the opposition to it, said: "It resolves itself into who has the bullets." That is a neat way of summing up what any association needs in order to secure and enforce any of the legitimate demands of its members.

It doesn't make any difference whether a situation has to do with utility company relations, or general contractor relations—or any other of the situations that arise in the business world,—the decision will rest with those who "have the bullets."

Now, that does not mean war and battle and unpleasantness. In fact, when the situation actually develops, if the association is not already in possession of the needed "bullets" it is too late to commence melting down the family pewter ware to make them. What it does mean is strength built into the association over a period of time. It means the ability to present a united front, to a community that is accustomed to see that particular group offering a united effort. If it's the utility company situation, it means the ability to prove the case for the salesmanship of the master plumber group—as in the case cited at the conference. If it's the general contractor situation again, it means demonstrating to him and his fellows that he is really dealing with a cohesive group, and that he can not make a flank movement successfully because the group is really not standing as a unit, but has elements in it that may bolt at the offer of a fancied advantage.

This business world is a practical world. One does not need to charge trickery or dishonesty to indicate the need for the "bullets" of strong group loyalty. As the American competitive system operates it's pretty much every man for himself; and if one group of men finds another that is too weak to protect its interests, it is only natural that the first group will take advantage of that weakness. And it is undoubtedly true that the knowledge of that weakness is a strong temptation to go beyond the practices acceptable under competitive conditions, and to make use of sharper practices than strict honesty warrants. But that is a fact of human life—weakness invites aggression, and a strong unified front is a good preventive.

Let's have the "bullets" of constructive training in the plumbing and heating industry, of group loyalty based on actual service being rendered by the various associations in the field.

PLUMBING & HEATING MERCHANDISING

"Experience is the best teacher" has been the guiding principle in building these feature sections for the last three years. Now we commence a review of the material published—classifying it to make it a practical and handy manual of merchandising for the plumbing and heating contractor. Part I, which follows, deals with effective methods of

PROSPECTING

Every business must have prospects—people who are logically in line to use the products or service of that business. Upon the degree of efficiency with which the management secures prospects—who may be people never before served, or may be those who have been served, but are in need of other products handled—depends to a large measure the possible growth of the business. The following pages present a survey of the various methods actually used by plumbing and heating contractors to learn the names of those people who can be sold service or products handled by them. The care with which firms possessed of good mailing lists protect those lists of names indicates their value. A great deal of ingenuity has been shown by contractors in their endeavors to enlarge the number of their prospective customers. What their methods were is set forth in the following pages.

PART 1 of what will be an exhaustive survey of all the merchandising material published in this section since March, 1927

This is a study of contractor methods used in finding

Prospects

THIS section will deal with prospects—who they are, how to find them, and how to keep prospect records. A prospect is a person who has a need for plumbing and heating products and service, and an income which will permit him to buy. This classification will include home owners, owners of homes or apartment buildings that are rented, and owners of commercial, manufacturing or institutional buildings.

First let us get over the matter of income. It would be ideal if every plumbing and heating contractor could have all of the details about all of the people in his community, of course. If he knew just how much every home owner earned, and the other details which might affect the buying power of prospects, it would help him. But, practically speaking, it is not possible for the individual contractor to get all of this information. People are reluctant to give information about income and other intimate matters to local merchants. So that, as a matter of practice, the individual local retailer must combine his own knowledge and judgment of his community, with the facts which can be definitely learned as to ownership, value of property, etc.

If he does a good job of "prospecting" he will make use of every source of information that is open to him. If his local newspapers have conducted surveys of his city he should study the results in the community or communities within the city that he serves, or wants to serve. As an advertiser, or as a potential advertiser, he will find the newspapers willing to let him have this information. If his local chamber of commerce, his local retail credit organization, if any of the manufacturers of the products he handles, have anything in the nature of a market analysis of his city, he will be a careful student of that material. In other words, he will supplement his own knowledge and judgment about who are his prospects, and what he can sell them, by everything and anything that will aid him to clarify his ideas and make his prospect list as nearly perfect as possible. As will be seen, his own surveys will help, to the extent that he will be able to get information as to equipment already in the home and, perhaps, the condition it is in.

How good a job he does will depend upon how clearly he recognizes the importance to him of a well-kept prospect list. Various estimates have been made as to the turnover of names on any list of home owners in a community. People die, they move away; new homes are built or old homes are bought by newcomers. These changes must be watched, or a mailing list becomes largely obsolete, and there is a waste in mailing costs because letters and circulars continue to be addressed to people who are no longer prospects.

An example of what we mean by the contractor's use of his own knowledge of his community comes from Philadelphia. Here a very successful contractor, specializing in jobbing work, opened his place of business in a community in which it was estimated that 90% of the people own their homes. He, therefore, used the telephone list which, he says, is practically a list of

This type of store is a powerful magnet for prospects

Another store that produces prospects by display

people owning and living in their own homes. Obviously, in such a case the cost of a survey would have been a needless expense; although it is to be noted that this contractor uncovered prospective jobs in these homes both through his journeymen and through inspections offered.

Sources of Prospects' Names

The Store

First let us treat of the more obvious means of securing prospective purchasers. One of the reasons why so much importance is attached to the maintenance of a good looking store and an attractive window display is that they draw the attention of people. In the first place, the store acts as a kind of standing invitation to visitors. Over long periods of time it helps to impress the name of the contractor on the people of his community. In the second place, effective window displays will bring people into the store with the idea of immediate purchase in mind.

Store location, therefore, becomes an important factor in producing prospects. Here again the contractor's own knowledge of his city, combined with any formal survey information he can secure concerning the divisions of his city, and his own idea as to the type of customer he wishes to cultivate, will determine what is a good location. About the only safe general rule is that there must be traffic—the location must be one where a number of people will see the store each day. In Dallas, a plumbing firm had an actual count made of the traffic which passed a desired location before the move was actually made.

In an Ohio city, one firm has its store located, not only in a neighborhood of homes built ten to twenty years ago, but at an intersection used by people from outlying districts. It is an important junction point.

Perhaps the greatest ingenuity exercised in the choice of a location was used by another Texas contractor. This plumbing store was located next door to a large food market and the contractor says that this position with reference to the food market was the determining factor in his selection of the new location. Not only do hundreds of women pass the store daily on their way to and from the market, but there is an inviting passageway from the side street, leading through the Coburn store and into the market. This saves several steps, and women are grateful for it. An evidence of the value of the idea is this: In the old location, seventeen gas ranges were sold in a period of seven months. In the first month in the new location, thirty-seven ranges were sold. In six months, gas range sales called for two carloads of these products.

In a later issue we will go more exhaustively into the question of store location, when dealing with store merchandising. But from the examples given, it is apparent that the store has a place in producing prospective customers, and that location will be a matter for the contractor's judgment, based upon his own knowledge and any other data he can secure concerning his city.

Newspaper Advertising Should Produce Prospects

It is to be assumed, of course, that newspaper advertising by the very fact of its publication, does something to build prospective customers for the contractor. But it is suggested that contractors ought to take a leaf from the practice of advertisers of other products. Wherever possible they try to make the advertisement produce direct evidence of interest. The advertising may carry a coupon which requests specific advice, or it may carry reference to a booklet in which the prospective customer will be interested.

It is true that some of the inquiries produced are not necessarily from people with any immediate need for the product in question. But that hardly alters the logic of the case. Those same people might read the advertising without the offer of the booklet. It is for the sake of those who have a genuine interest that the request for inquiries is put out.

MAIL THIS COUPON

Call and inspect my heating plant, without obligation to me. Give me estimates on

☐ New radiator heating system
☐ Overhauling my present plant

Name.....

Address.....

C. H. BABB & COMPANY
106 Exchange Street, Bangor, Maine
PHONE 1111

It Pays to MODERNIZE Your Plumbing and Heating

To make newspaper advertising produce prospects is the purpose of this coupon

At the same time, the coupon, or the suggestion to telephone the contractor, may be put in such a way that no one will follow the recommendation without having an immediate interest. We reproduce in this section a coupon which appeared in a newspaper advertisement which, while it is designed to bring inquiries, will result in no useless calls from those who have no interest in heating.

The Cleveland heating contractors' association, in their newspaper advertising campaign, have carried a coupon at the bottom of the advertisements, to be clipped out by the prospect. The coupon requests that the association send a copy of the booklet, "What About the Heat?" Obviously, every such name is considered a prospect until proven otherwise.

who have not yet given the contractor any work. Among his own customers are probably his best prospects—particularly when he has taken on a new specialty. As one contractor put it: "In view of the fact that our customers who buy heating equipment from us are our most logical prospects for oil burners, we find it pays to concentrate our best selling plans upon this specific type of prospect." Here is clearly seen the opportunity so many contractors miss when they have a chance to send their journeymen—or go themselves—into the homes of their customers. Because they are called in for a small repair, the matter is permitted to rest there. But the value of this customer contact ought to be made clear by the statement of the contractor above. After putting in heating systems for a number of years, he took on an refrigerator installations were made. A typical case followed small repairs

The telephone is successfully used in "prospecting"

The purpose of this coupon also is to produce prospects

Heating & Piping Contractors Cleveland Assn.
1227 Prospect Avenue, Cleveland, Ohio.

Kindly send me your booklet, "What About the Heat?" as offered in your advertisement.

Name.....

Address.....
P. D.

Varied Methods for Gathering Prospects' Names

It is to be observed that the successful men among the merchant plumbers are those who are ever alert to gather (and make a part of their records) the names of those who are logical prospects for service or sales. What follows is a description of the various ideas which contractors in many sections of the country have applied to the gathering of names.

It is to be remembered, of course, that prospects are not only those

Journeymen should be instructed that it is to their interest to turn in inspection reports

oil burner. And, quite logically, he went back over his heating plant installations to sell the oil burner.

It was this same contractor who said: "It has been our experience that it is easy to overlook the simplest and most direct methods while searching for something out of the ordinary. One is inclined to look afar in search of prospects and at the same time overlook the most practical sources of business right under his nose."

Make Journeymen Turn In Prospects

At the recent Presidents' and Secretaries' Conference in Chicago stress was laid upon the fact that, in having entree to the home, at the invitation of the customer, the contractor has an advantage not shared by many retailers. Hence the importance of having journeymen trained to report on what they can see of the plumbing and heating in the home. A St. Paul contractor has proven definitely that these reports have a big sales value. As a result of these journeymen reports, fifty made when a building was being turned over to a new owner. The journeyman's report showed that the water heater was too small for the number of people in the apartments to be served. Prompt follow-up made the sale.

Practically every successful merchant contractor has worked out some form of report from his journeymen and the stories we have carried have indicated time and again the uncovering of sales by the men who do the jobbing work. Some contractors pay a bonus or small commission for such leads; others say that they put the matter to the men this way: As long as there is steady business they have steady work and it is to their own interest to make these reports of possible sales. The most efficient method is to have a form of inspection report card which the journeyman actually fills out after doing a job, this routine assuring the contractor that no prospect will be overlooked.

In this respect, use should be made of the "Plumbing and Heating Inspection Charts" recently published in

AULT PLUMBING AND HEATING

Arch & Columbia *Phone 2224*

Do you intend to build?.....
Are you interested in a new Tub?.....
Are you interested in a new Lavatory?.....
Are you interested in a new Closet?.....
Are you interested in a new Closet Seat?.....
Are you interested in a new Sink?.....
Are you interested in a new Swing Spout Bibb?.....
Are you interested in a Laundry Tray?.....
Are you interested in a Water Softener?.....
Are you interested in heat by Radiators?.....
Is your hot water supply satisfactory?.....

With this ticket filled out properly we will make a free inspection of your plumbing and heating.

Name.....

Address.....

One form of survey card used by an Ohio contractor

DOMESTIC ENGINEERING, because they give an unfailing guide to just what should be looked for in the plumbing and heating systems, instead of leaving this to a more or less haphazard inspection by the journeyman.

How the Home Survey Has Been Used

A great number of contractors have used the idea of a survey, adapting that idea to the size of their organizations. Some have been able to use their salesmen; some have had to hire others to do the work. But in every case, these surveys have produced good names, and have resulted in sales.

A New York state contractor, with a force of eight men, worked out a card and then sent the men, in four teams, into different sections of the surrounding territory. These men visited every farmhouse they could reach and at each learned what type of heating equipment was being used, and how long it had been in use. No effort was made to sell these people at that particular time. At the end of thirty days it was found that the men had turned in six hundred names of people regarded as ripe for a change in heating equipment. While no effort was being made to sell these people, seventeen sales were made to people who were ready for the change at the time the salesman called. Incidentally, this heating survey resulted in the sale of a number of other items carried by the firm, the need for which was uncovered during the canvass. As the man who had charge of it said: "It is much cheaper and easier to sell to a person whom you know needs a heating plant than to try and sell one to a person who already has an efficient heating plant, but about which you may not know."

Naturally, the making of such a survey must be considered in relation to its possible cost. One contractor found that it was costing him ten cents a name, secured in this way by canvassers. In his judgment that figure was too expensive; and while to general experience it may not seem so, he substituted a method that brought the cost down to what he estimates as three cents a name. He used the telephone. Covering the same district in which his canvasser had worked, he phoned each home and secured such information as he needed. Using this method, he secured a mailing list of three thousand names, "giving," he said, "the exact information desired, at the cost of approximately three cents per name."

This same contractor also watches building permits closely.

Show the Home Owner His Interest

Some of the difficulty of making a survey will be overcome if the matter is studied and a convincing reason found to satisfy the home owner that the call is of some value to him or her. A Minnesota contractor who undertook to build up his list, instructed his "surveyor" to present the matter in this light: As the home owner's neighborhood plumber, it would be of advantage to the prospect for him to know just what was in the house so that, in case of a need for emergency service, he would have all of the necessary information on file, and better service would be rendered. The total list of this contractor amounted to about 3,000 names, and the information enabled him to send literature on items which he knew were lacking or in need of replacement. Incidentally, the canvass developed sales to an amount five times the cost of having the survey made.

One interesting form of survey was made by a California contractor who wanted to make a sales drive on water heaters. Using the house-to-house canvass method—members of the firm doing it in their spare time—they asked for such information as would almost convince the home owners in answering the questions that they are in need of an automatic water heater. We show the card used. Naturally, the interview was used to secure other information, to be put on the back of the card. But the approach was from the angle of hot water needs, and soft water needs.

A Grand Rapids, Mich., contractor placed a classified advertisement in the newspaper for a group of women to make house-to-house calls. Of those applying, ten were selected. They were of a fine type, being for the most part housewives who

Name.....Tel.....

Address.....

Do you have hot and cold water?.....
Do you always have sufficient hot water?.....
Is the hot water discolored at times?.....
Does sediment collect on tub and washbowl?.....
Would you be interested in a heater that would give clean, hot water any hour of the day or night?.....
Would you be interested in a device that would deliver pure, soft water to all fixtures?.....

(Use reverse side for further remarks.)

This survey card was used to uncover prospects for water heaters

wanted to earn a few dollars to be added to their household funds. These ten women made ten thousand calls with a heating survey card. They were paid three cents for each card turned in. It is interesting to have the tabulation of the figures for the sales campaign which followed this survey. Total sales were $9,270. All costs, including overhead and commissions and the cost of the women's services, were $8,119.40, leaving a net profit of $1,150. And, of course, a part of the prospect list was good for further use in later campaigns.

Group Demonstrations Produce Prospects

Among the successful ideas used in uncovering prospects for specific items of equipment, is the demonstration of that equipment in some place arranged for by the contractor. One contractor calls these "neighborhood demonstrations," and he has held them both in churches and in homes. In holding the home demonstrations, his usual plan is to find a customer belonging to a bridge club. The salesman approaches her and finds when it is her turn next to entertain the club. The novelty which he offers in securing her permission to demonstrate the gas range is that they will provide the lunch, which is used, of course, to demonstrate the qualities of the range. More often these demonstrations are held in neighborhood church social rooms. This contractor finds that the bridge club demonstrations are usually to groups of about sixteen women, which he says is an ideal group. After the game is completed, and the luncheon has been served (the lady demonstrator of the range cooks the meal), the range is explained. A series of charts showing different points to be emphasized concerning the range are used as the basis of a brief lecture. From these demonstrations the contractor reports very good results—two sales per demonstration being the average reported.

Another method, followed by a nationally prominent contractor, involves contact with a local church society. The society is offered the sum of $10 for securing the attendance of its members at one of the Friday afternoon meetings. At those meetings, the contractor addressed the ladies on "our business as it affects them." Attendance varied from twenty-five to sixty-five women.

The contractor went over the subject of sanitation generally, following this with a demonstration of a water softener, a water heater, or some other plumbing appliance. Those in attendance were asked to sign a card, giving their names and addresses and whether or not they owned their own homes. After a year, the contractor reported the plan as successful in turning up a number of new customers for the various items demonstrated.

We give this example prominence to emphasize the need for the alertness in searching for prospects. A Louisville contractor keeps a file of "lost jobs" which are followed up, in the course of the following year. This is a fine example of permitting no possible source of prospective customers to be missed.

Another Eastern contractor got in touch with the clergymen in churches where there were organizations of women, and with their consent wrote a letter inviting them to visit the store. In a period of one week, eight hundred and forty-six women registered at the store, and a number of them being accompanied by their husbands, the contractor estimated that a thousand people visited the store. About 25 per cent of the visitors had never before been in the store. The result was the addition of valuable prospective names. And, although there was no effort made to sell during that week, because of the number of visitors, three gas ranges, one washing machine, a refrigerator and several plumbing fixtures were bought. "The gross profit on the merchandise," said the contractor, "was more than the actual cost of the drive, which amounted to a little over two hundred dollars."

A Tulsa, Okla., contractor wrote the secretaries of about twenty clubs. The manner in which this method was suggested to him is indicative of the alert attention the contractor should bring to this matter of building up his prospective customer contacts. He saw the names of these officials listed in a club publication. In his letter he offered to make a demonstration of an electric refrigerator for one hour on any day named. The club was offered ten dollars if thirty members were in attendance. Within two months twenty-nine applications for such demonstrations had to be turned down for lack of time. At least $13,950 in electric refrigeration sales were traced directly to the prospects secured in this way.

Showing Merchandise Gains Prospects

Exhibitions, fairs, etc., are, of course, a source of prospective customers' names. The idea is used in a number of ways. One contractor, interested in pushing the sales of a stoker, uses window display space at a location separate from his store. Another contractor, who is pushing electric refrigeration, takes the opportunity offered by vacant stores to set up displays of his refrigerator, a card in the window informing the passerby the location and telephone number of the contractor whose display it is. He has a window to himself with nothing to distract from the attractive manner in which he presents the refrigerator. He reports most favorable results.

One Ohio contractor secured a generous number of names and some very nice sales from a building show in his city. His exhibit cost him one hundred dollars and before the show had closed he had contracts that represented far more than the cost of the exhibit. A card at the booth offered to those who filled it out a free inspection of their plumbing and heating and, incidentally secured a tremendous amount of information concerning the condition of the plumbing and heating in the home. At the time this was reported, the contractor had been able to see only five per cent of those who filled out the cards, but the results had indicated that he had a very fine list

of prospects. This same contractor, in co-operation with a local department store, set up the plumbing and heating displayed as a part of a "dream home" exhibit in the windows of the store, his name, of course, being prominently displayed, —another source of names of prospects.

Model Home Participation

Two contractors, by using the model home idea to advantage, were able to add prospects' names to their lists, and to make sales. One Wisconsin contractor, instead of waiting for some one to start the project, did so himself. A total of 3,300 people visited the home, and from the registration book were taken the names which, later, were followed up successfully for sales. Two complete plumbing installations and one heating system were sold during the demonstration of the home. By permitting the other trades to participate in the display of the home and its fittings this contractor, as he says, "kept my advertising cost down to a very small amount. The second contractor—operating in Pennsylvania, —as one of the group which furnished equipment for a model home, used quarter-page advertisements to call attention to this fact and, naturally, had his share of the prospects developed by the demonstration of the model home.

The Telephone

Another contractor reports the use of the telephone in a successful way. The telephone directory was used: "We go down the street," says this contractor, "and call each number, find out how they are heating their home, and outline each of our products to them. We are averaging six tips out of every ten calls for some form of heating equipment or service." That is a very high average, in spite of the seeming indiscriminate use of the telephone.

The contractor should familiarize himself with the routine sources of names. In some cities directories of home owners are published, showing the value of the home, which enables the contractor to say—as one did—that he will confine his list to those whose homes range in value above $6,000. Tax lists, poll lists, daily legal news showing transfer of property, news items, lists of professional men,—these are some of the

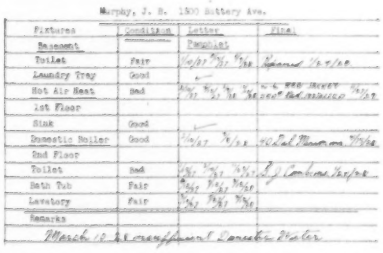
It is necessary to keep the prospect list in orderly fashion. It need not be elaborate

sources of names. Naturally, if the list does not make clear the fact that the owner lives on the property, this information ought to be checked as the owner who is renting property must be approached with different reasons for modernizing than the man who does live in his own home.

It is important, of course, for the contractor to use his customer list. This falls naturally into two divisions—first, those who are active and second, those who have not ordered work for some time. From time to time the the latter type of customer should be approached again almost as a new prospect, with the exception that reference is made to previous service rendered.

Selection Paid This Contractor

One contractor has this to say concerning the building up of a prospect list: "Obviously there would be little nourishment in canvassing a man who could not afford to buy. Consequently, our prospect list was made up of the so-called professional classes—doctors, dentists and lawyers, and from business men and executives whose income enables them to buy those things which make life easier and most pleasant. I secured the names of business men whose income would enable them to buy the product, first by taking the names in the directory of managers,


Murphy, J. B. 1500 Battery Ave.

Fixtures	Condition	Letter	Visit
Basement		Pamphlet	
Toilet	Fair	10/27 3/31 6/31	Phone 12/1/30
Laundry Tray	Good	"	
Hot Air Heat	Bad	10/27 3/31 6/31 " " "	12/1 Will Invest 3/31
1st Floor			
Sink	Good	"	
Domestic Boiler	Good	10/27 3/31	12/1 Tel Thurs 3/31
2nd Floor			
Toilet	Bad	10/27 3/31 6/31	Ltr Contractor 3/31
Bath Tub	Fair	10/27 3/31 6/31	
Lavatory	Fair	10/27 3/31 6/31	
Remarks			
March 10 Recommend Concrete Water			

Here is a "home-made" prospect card —but it showed the way to 75 per cent of the possible sales

secretaries and treasurers of corporations, banks, etc., and second by taking the streets where the monied people live. Prospects were interviewed by personal calls, following appointments made by telephone, thus saving time and assuring an interview."

A Baltimore contractor, who first set out some years ago to do what he calls "neighborhood selling" sat down and commenced making up his prospect list by noting the names of all those whom he knew in his neighborhood, as well as those for whom he had done work. Since then, he says, he has made it a habit to note the names and addresses of the people he meets, as well as those given him by his customers. "No matter who the person is and how remote I think he is from ever giving me a plumbing or heating job, I will always take his name and address and if I am in his house, or if it is possible to get in, a complete description of his plumbing and heating and its condition is noted on an inspection card for future reference." This may be going rather far; but this contractor reports no dissatisfaction as far as he is concerned with his list.

Another routine idea that should not be lost sight of is the call on the customer for whom a job has been done, and, while that call is being made to inspect the work, a request should be made for the names of friends who might be interested in or in need of service.

With the radio being used more and more it is interesting to hear what contractors who have gone "on the air" have to say about it. At least one has given it up as unproductive. Another says that 50% of the business on Monday (he broadcasts on Sunday) are directly traceable to the radio. As yet it has not been pos-

sible to get anything like a definite statement concerning radio advertising. Wherever it is used, prominence should be given to the telephone number to make it easy for the listener to make known his needs.

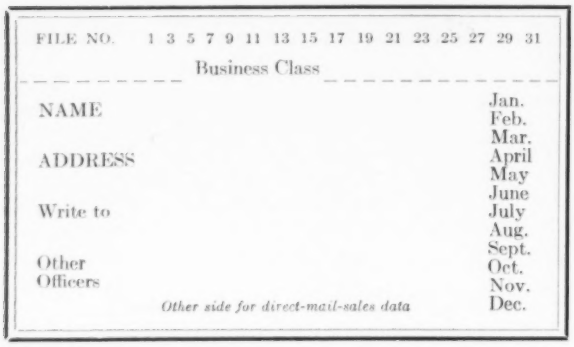
Thoroughness in checking lists, within the practical limits of the contractor's means and the possibilities offered, is to be recommended. A Nashville contractor made up a list of five thousand names from the local telephone directory (naturally using his knowledge of the city). This list was then sent to a credit bureau for credit rating and for the more important information as to property ownership. Following this it was sent to the local post office which checked it for correct addresses. This last service, by the way, is available wherever there is a post office.

Classifying Prospects Aids Sales

Where the city is not too large for a firm to consider attempting to sell in all its communities, the following is a formula worked out by a plumbing and heating contracting firm, meant for use in connection with a sales campaign on a specialty:

1. Determine property owners and classify as to those living in homes and otherwise.
2. Classify renters according to type of home they occupy and financial responsibility.
3. Divide entire city into zones and then classify zones as above.
4. Start mailing list for series of letters.
5. Pick out districts first that contain the better class which demands conveniences.
6. Newspaper advertising regularly, to correspond with the idea carried in letters.
7. Up-to-date showroom with working demonstration.
8. Personal call on prospects first as mentioned in paragraph five. Then follow through in zones.

Said this contractor: "Classification of prospects eliminates duplication and wasted time on impossible prospects is cut to a minimum. By concentrating on paragraph five immediate sales will be obtained."


FILE NO. 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31

Business Class

NAME

ADDRESS

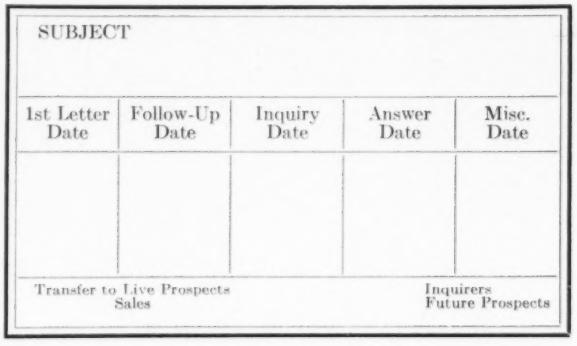
Write to

Other Officers

Jan. Feb. Mar. April May June July Aug. Sept. Oct. Nov. Dec.

Other side for direct-mail-sales data

Face of card on which is kept information concerning prospective customers


SUBJECT

1st Letter Date	Follow-Up Date	Inquiry Date	Answer Date	Misc. Date

Transfer to Live Prospects Sales

Inquirers Future Prospects

Reverse of the card on which is kept list of literature sent to prospect

How to Keep the Prospect List

The primary purpose of a prospect list is use—it should be ready for reference at any time, either for the mailing of letters or circular, or for the necessary information to be used on a personal call. What, then, is the best way to keep it?

For the use of the average contractor in our field we believe that a simple card system is sufficient. It does not make any difference whether you buy the prospect cards at your local stationer's, already printed, or whether they are merely plain white cards. The important point is to get your information down on the cards. A list of prospects on sheets of typewriting paper is useless, because it can not be added to systematically, nor can it show the necessary information about each prospect.

Keep List in Orderly Fashion

Having the card, it is important that the information be put down in an orderly fashion—not varying from card to card. That is the value of the ruled or printed card. It has the divisions. But even a plain card can be handled in a systematic way, plumbing information being in one column, heating information in another, and general information in a place set aside for it.

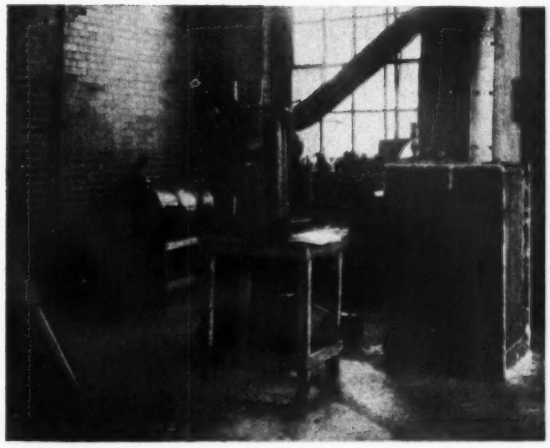
If there is a girl in the office she should have it as a part of her duty to keep the card file in order, to remove cards when mail has been returned showing that the customer or prospect is no longer to be so considered. In the combination business, it would be well to separate plumbing and heating and to have cards for each division.

We show a card that was taken from the files of a successful merchandising contractor. It is very simple. But that card served its purpose—it gave the information necessary to make most of the possible sales to that home.

The larger the business grows, the more care it will be necessary to give greater attention to the file of prospects. One contractor who handles oil burners, refrigerators, gas boilers, water heaters, and other specialties, wants his cards divided into products. Thus he may have a card for the same person in all or most of those divisions. But, unless the business is very large, that does not seem to be necessary because it does add to the expense of the list.

The most practical advice that can be given is: Get your prospects' names on cards, and enter on those cards in a standardized manner, all the information you have about each prospect. If a contractor wants to make a hobby of his prospect list, he can go to great lengths in keeping it, and classifying it by products, by streets, by names, and according to the periods at which he sends out literature. Specific help for any business can be secured without much difficulty.

Do You Know What Makes for Efficiency in Oil Burner Installations



The laboratory testing set-up. The 25-in. round boiler is seen at the rear

A. H. Senner Gives the Answers in the 4th and Last Article of His Complete Series

WHAT is evidently lacking is a conception on the part of the average oil burner installation man as to just what conditions make for better efficiency when installing an oil burner. What adjustments are necessary in order to make the fuel consumption a minimum for a given heating job? One of the most important factors in burner efficiency is the fuel rate, that is, the amount of fuel which is burned per hour, yet it is the writer's impression that seldom is any effort made to fix this rationally according to the requirements of the various installations. Some manufacturers produce certain sizes of burners to suit various sizes of heating plants, but this practice is apparently followed less each year, so that most of the responsibility for establishing the size of the flame rests with the individual installing the burner. Obviously if the flame is more intense, that is, if it is adjusted to burn more oil per hour, the number of hours which it will operate in the 24 will be less. What effect does this have on fuel consumption? In order to approach this problem let us first study typical performance curves for an oil burner when installed in an ordinary heating boiler.

Performance of an Oil Burner

Fig. 1 shows the performance of an oil burner in a 25-in. round cast iron boiler. (Data from U. S. Department of Agriculture research.) The adjustment was such that the excess air was always held to about 50 per cent. In other words the Orsat test apparatus would show about 10 per cent CO_2 in the stack gases. The curves show how the performance changes as various amounts of oil are burned per hour. The hourly quantity is shown as the horizontal coordinate and is seen to vary from about 6 to 12 pounds per hour. Recalling our previous discussion of oil characteristics, it will be seen that this represents a range from approximately one to two gallons of oil per hour, since there are roughly 7 pounds of oil per gallons for the kind under consideration.

The uppermost curve in Fig. 1 is designated as the efficiency curve, and shows how the boiler efficiency varies as different hourly quantities of fuel are burned. For example, in this given installation if we burn only 6 pounds of oil per hour the efficiency will be approximately 68 per cent. Similarly if we burn 12 pounds of oil per hour, the efficiency will then drop to about 56 per cent. While this change in fuel rate is taking place bear in mind that the air supply is changed in direct proportion, so that there is always a constant excess of about 50 per cent.

The second curve shows the manner in which the stack temperature rises as the amount of fuel burned per hour increases. Naturally, as the intensity of the flame increases, the capacity of the boiler to absorb the heat being fixed, more heat goes up the stack and the stack temperature naturally rises. Thus, when burning only 6 pounds of oil per hour, the stack temperature is about 425 deg. Fahr. and when the amount of oil burned is 12 pounds per hour, the stack temperature rises to about 560 deg. Fahr. For this curve the excess air is also held constant through the entire range.

The lowermost curve shows the true heating effect of the oil. That is, it shows the amount of heat in British thermal units, abbreviated B.t.u., which are actually transmitted to the heating system. It will be recalled

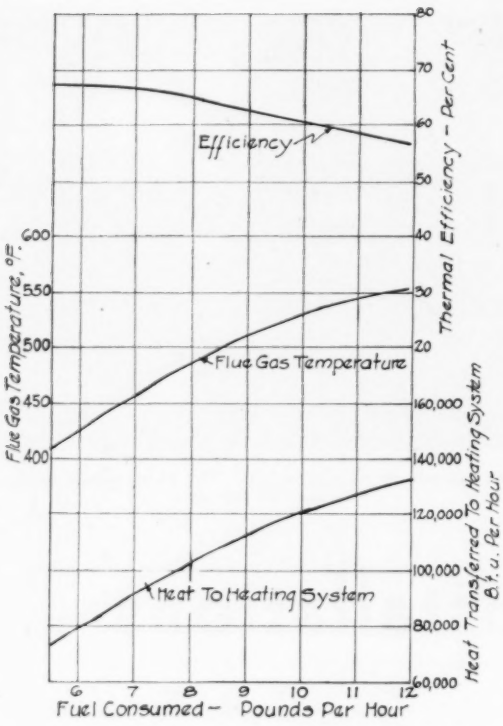


Fig. 1—Curves showing the performance of an oil burner. It should be observed that doubling the amount of oil burned per hour does not double the amount of heat which is transmitted to the heating system

by the reader that one B.t.u. is, for all practical purposes, the amount of heat necessary to raise the temperature of one pound of water one degree Fahrenheit. From this it follows that to raise 100 pounds of water one degree, 100 B.t.u. are required, and similarly, to raise 1 pound of water 100 degrees, 100 B.t.u. are also required. From the lower curve it can be seen that when 6 pounds of oil are burned per hour, 80,000 B.t.u. are transmitted to the heating system and when 12 pounds of oil are burned per hour about 132,000 B.t.u. are transmitted to the heating system. It should be noted that doubling the amount of oil burned per hour does not double the amount of heat which is transmitted to the heating system, because the efficiency decreases as the hourly oil rate is increased, as shown by the efficiency curve at the top.

Now in installing a burner in a given boiler what is the basis for fixing the amount of oil which will be burned per hour? The rate must be high enough to take care of the heating job on the severest day of the heating season and it must do so with the burner operating less than 24 hours per day in order to allow for the starting and stopping required for automatic control. Then the question arises how long shall the burner operate on the coldest day and what effect will the selected fuel rate have on the efficiency of the plant?

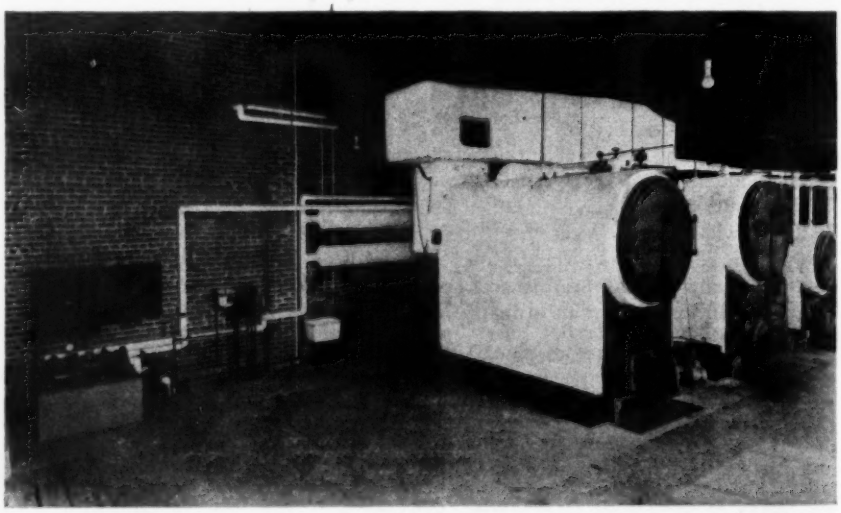
Actual Example Discussed

In order to study this problem let us consider an actual case. Suppose that a load of 600 sq. ft. of water radiation is attached to the boiler and burner whose performance is given by Fig. 1. Let us assume that this amount of radiation will require about 1,600,000 B.t.u. for the severest 24 hours of the heating season. The particular method of arriving at this figure will not be given here because it would only serve to add complexity to the example. Table 1 and Figs. 2, 3, and 4 have been submitted to show the effect of change of fuel rate upon the hours of operation and the total amount of fuel consumed during the 24 hour period under consideration. Let us first consider Table 1.

Table 1. Effect of Rate Combustion

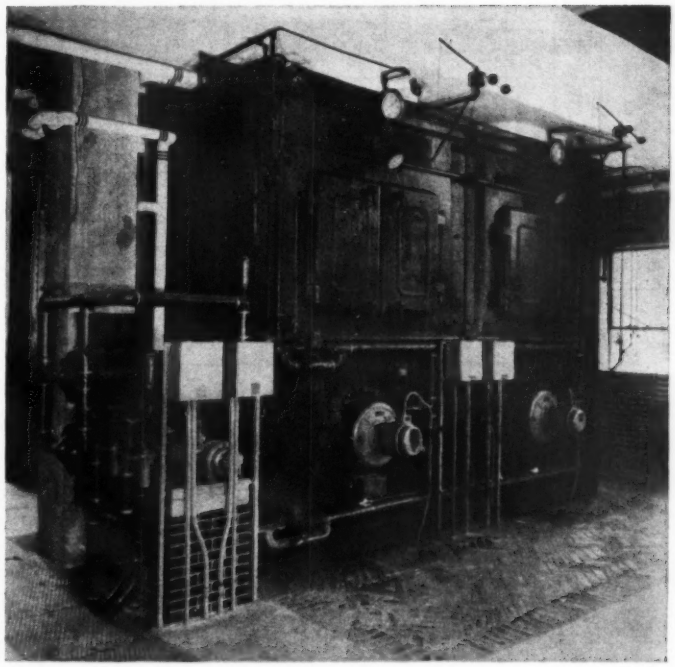
Fuel Consumption Lb. per Hr.	B.t.u. per Hr. Transferred to Heating System	Hours of Operation	Lb. Fuel Consumed for 24 Hours
(1)	(2)	(3)	(4)
6	80,000	20.0	120.0
7	91,000	17.6	123.2
8	102,000	15.7	125.6
9	114,000	14.0	126.0
10	121,000	13.2	132.0
11	127,000	12.6	138.6
12	132,000	12.1	145.2

In the first column we are merely tabulating the range of hourly rates at which operation may ensue, starting at 6 pounds per hour and ending at 12 pounds per hour. That is, the burner may be adjusted so as to operate at any point in this range and our purpose is to study the effect of operation within such a range. In order to determine the number of hours the burner will have to operate out of the 24, it is first necessary to deter-



The oil burner installation in the Georgetown Preparatory School in Maryland. The tests and information which are described were applied to actual operating conditions on this job

mine the hourly heating effect. That is, we must determine the number of B.t.u. which are put into the heating system when burning 6 pounds of oil per hour, 7 pounds per hour, etc. This information is obtained from the lowermost curve of Fig. 1; the heating effect curve, and is tabulated in column 2 of Table 1. The third column is obtained by dividing the numbers in column 2 into the B.t.u. required per 24 hours, which has been established as 1,600,000 B.t.u. This is obvious since the number of hours which the burner will operate during the 24 hours will be equal to the total B.t.u. demand divided by the number of B.t.u. which are transmitted per hour into the heating system by the burner. The number of hours which the burner must operate at the different hourly rates, ranges from 20 hours at 6 pounds per hour to approximately 12 hours at 12 pounds per hour. Again it should be noticed that doubling the hourly rate does not cut the operating time in half, because high fuel rate introduces loss of efficiency. The relation between the hourly rate of fuel consumption and the number of hours of operation in order to supply the 1,600,000 B.t.u. required during the severest 24 hours of the heating season is shown in Fig. 2, in the form of a curve. This curve shows clearly the effect of varying the hourly fuel rate. As would be expected, the number of hours of operation required in order to perform a given heating job decreases as the amount burned per hour increases.



Another installation which the author supervised and checked for correct operation according to the principles which he sets forth

Column 4 of Table 1 gives the total fuel consumed during the 24 hours and is the product of column 1, the hourly fuel rate and column 3, the number of hours operation. When the hourly fuel consumption is compared with the total daily consumption, the result in the form of a curve is shown in Fig 3. This curve shows that to do a given heating job, the daily consumption of fuel increases as the hourly rate of fuel consumption increases. The significance of this fact should be clearly understood. What this curve shows is that if the burner is set at a low hourly rate, the daily consumption of oil will be comparatively low and if it is set at a high rate, the daily consumption will be relatively higher in order to produce a given daily heating effect. The effect is not negligible by any means. For example, when burning 6 pounds of oil per hour, the daily consumption of oil for a given effect is only 120 pounds of oil whereas when the hourly rate is doubled the burner operates a much shorter time and yet the total daily consumption of oil amounts to 145 pounds—about 21 per cent increase. Again bear in mind that this increase takes place merely because the hourly rate is increased, while the air-fuel ratio is still maintained at the same value, giving the same percentage of carbon dioxide in the stack gases.

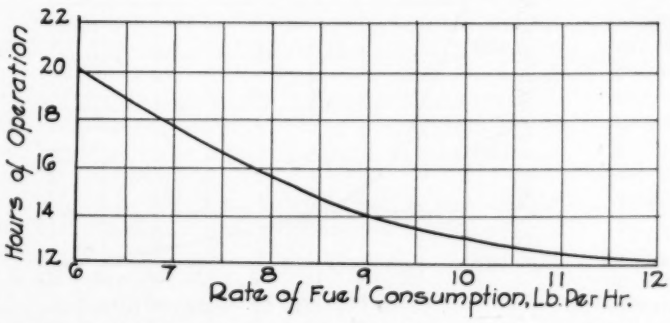


Fig. 2—The relation between the hourly rate of fuel consumption and the number of hours of operation in order to supply the 1,600,000 B.t.u. required during a test representing the severest 24 hours of the heating season is indicated by the above curve

Relation Between Hours of Operation and Consumption

Fig. 4 shows the relation between the number of hours which the burner operates daily and the total daily consumption of oil. Unfortunately, it is extremely difficult to convince the average owner that a burner which is adjusted to operate for a greater percentage of the 24 hours actually consumes less fuel under such conditions than one which operates only a few hours each day. Nevertheless the facts remain as indicated in Fig. 4. If the burner is adjusted so that it operates only 12 hours of the 24, the consumption is 145 pounds of oil for this particular example, while if it operates 20 hours per day, the daily consumption is only 120 pounds of oil—21 per cent difference, as estimated in connection with Fig. 4.

Let it be recalled that this has been estimated for the severest day of the heating season, because after all that is the day which must be provided for if it is the purpose of the installer to avoid a service call for lack of heat when the temperature drops to the neighborhood of zero. On milder days the

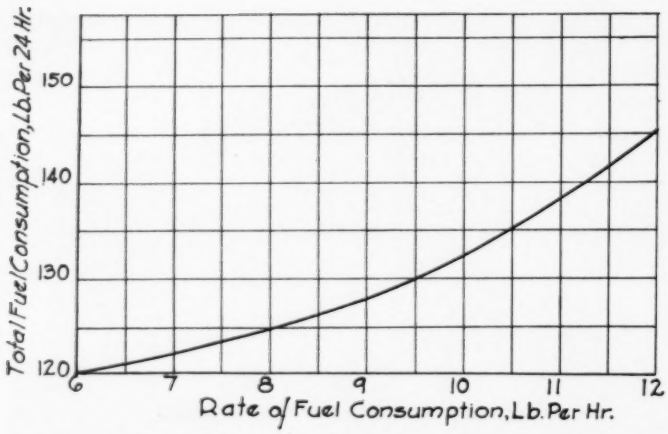


Fig. 3—When the hourly fuel consumption is compared with the total daily consumption, the result in the form of a curve is as illustrated

number of hours will be decreased in proportion to the decrease in the demand for heat. For example, if a given burner is adjusted so as to operate 20 hours of the 24 when the outside temperature averages 10 deg. Fahr. and the inside averages 70 deg. Fahr., then the burner will operate only about 10 hours of the 24 when the outside temperature averages 40 deg. Fahr. and the inside averages 70 deg. Fahr. The number of hours operation being proportional to the difference in the temperature inside and out in the two cases, which in the first instance is 60 degrees and in the second instance 30 degrees.

There are still other effects which act in favor of better economy in the case of lower fuel rates and longer hours of operation. These have to do with the more favorable conditions in the boiler as regards temperature when the burner is more nearly continuous in operation. Take the case of a burner which operates for a large percentage of the time—the refractory material or fire-brick is almost always up to a high temperature and beneficial effect as regards combustion is always realized. As contrasted with this a boiler in which the burner is operative only a small part of the time is seldom up to the maximum temperature and therefore the flame meets, more often than not, a refractory or fire-brick surface which is comparatively cold. This has been proved by actual test to result in inefficiency due to the fact that incomplete combustion results for such a period as is required for the brick-work or refractory material to be heated up.

Another effect in favor of longer operation is that due to the draft of cold air through the boiler when the burner is inoperative. As soon as the burner is shut down, the residual heat in the furnace, boiler and stack cause a natural draft which results in a passage of air through the boiler and up the stack, taking with it a certain amount of heat. This effect has also been determined by actual test.

From Fig. 4 it is seen that the total fuel consumption decreases rather sharply as the number of hours of operation is increased. But beyond the point which represents 15 hours of operation the decrease is much more gradual. This would also seem to be a good practical limit to place upon the burner operation. In other words, it might seem reasonable, all things considered, to adjust the burner so that it would operate not more than fifteen hours per day during the severest weather encountered during the heating season. In order to do this it can be demonstrated that the rate of fuel consumption should be about one-fifth gallon of oil per hour for each 100 sq. ft. of direct hot-water radiation, and about one-third gallon of oil per hour for each 100 sq. ft. of direct steam radiation. These figures represent the burner fuel rate setting and cannot be used directly to estimate seasonal fuel consumption because the burner will, of course, not operate continuously at this rate.

Determining Amount of Fuel Consumed

With certain types of burners the amount of fuel which is being delivered can be determined from a knowledge of the nozzle or orifice size and the pressure of the oil at the nozzle. With others the rate cannot be determined so readily. One good method of adjusting a burner for the amount of fuel passed is by feeding oil from a can of known capacity which has been connected into the feed line temporarily. For example if a quart can is employed and a rate of 2 gallons per hour is desired, the burner rate should be so adjusted as to empty the can in seven and one-half minutes. Similarly if only one gallon per hour is desired, the burner should be adjusted to empty the can in 15 minutes.

Applying Curves to Practice

Returning to the conditions of the problem above, since there is installed 600 sq. ft. of direct water radiation, the fuel rate in this instance should be $6 \times 1/5 = 1.2$ gallons per hour or approximately 8.5 pounds per hour. By reference to Fig. 2, it will then be found that for a fuel rate of 8.5 pounds per hour, the burner will operate approximately 15 hours of the 24 on the severest day. Then by reference to Fig. 3 again corresponding to a fuel rate of 8.5 pounds per hour, the total fuel consumption during the severest day will be approximately 127 pounds. These values are

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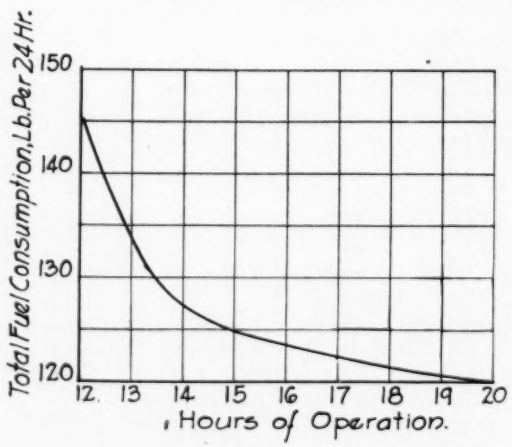

Fig. 4—This curve shows the relation between the number of hours which the burner operates daily and the total daily consumption of oil

How Noise Was Eliminated in Duct Work

By ROBERT L. STANLEY

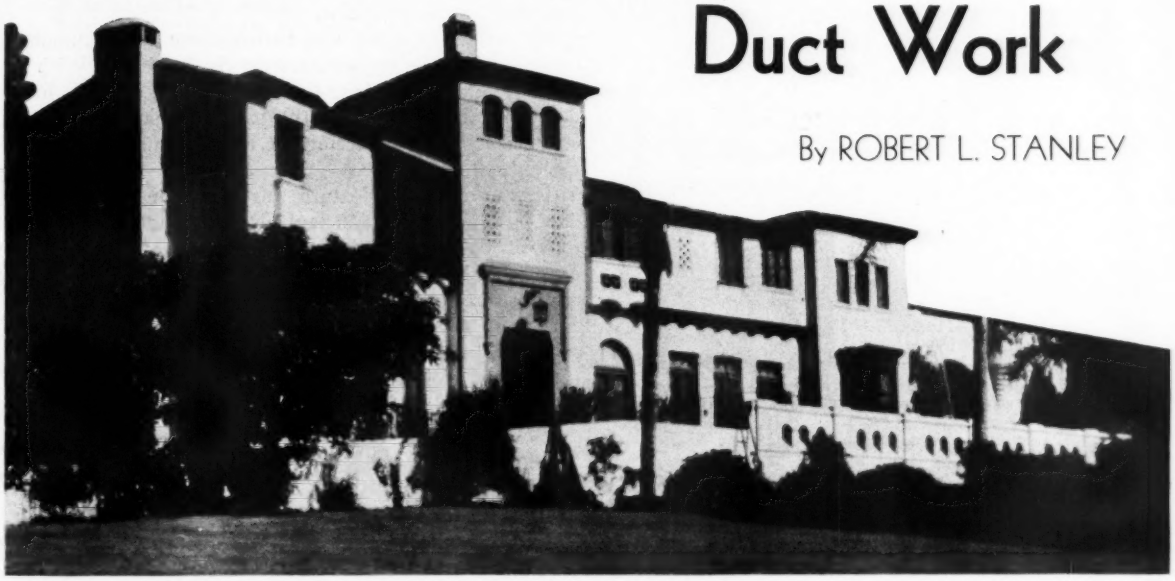

Fig. 1—In this residence, a preview room for the showing of talking motion pictures was built which required absolute quiet. Accordingly, the problem was to eliminate noise from the ventilating equipment

AN absolutely noiseless heating and ventilating system is a comparatively simple problem when the engineer has plenty of space at his disposal, but it becomes an entirely different matter when all apparatus, including a supply and an exhaust blower, must be installed in an "L" shaped space each leg of which is approximately 3 ft. wide by 8 ft. long with a ceiling height of approximately 10 ft.

This was the condition engineers were forced to face when installing a heating and ventilating system for the preview room in the residence of Winfield R. Sheehan, general manager of the Fox Film interests. The principal difficulties, however, lay in the fact that both blowers were in close proximity to the preview room, necessitating very short supply and exhaust ducts and were within a few inches of iron casings and ducts which formed perfect sounding boards for any noise made by the blowers.

The limited space compelled the use of small blowers which were direct connected to 8 pole-3 phase motors. Needless to say, the insulation of the blowers, both from the duct work and from the floor, received very careful attention.

The duct insulation was accomplished by installing very long canvas joints, each joint hanging very loosely and provided with a narrow reinforcing band around the center to maintain the shape.

The treatment to prevent floor vibration was identical for both blowers and was constructed as follows: A wooden box 36 in. wide, 48 in. long and 5 in. deep was bolted securely to the floor and divided into two equal sections by a 1-in. board partition. Each section of the box was lined around the edges with ½ in. of sponge rubber and a layer consisting of ¾ in. of hair felt placed on the bottom.

The heating contractor who does ventilating work will find this article of value as a definite practical example wherein a noise problem was solved and the plumbing contractor will see in it a general method usable in his sound insulation work.

Noise is noise regardless of whether it is in a ventilating system in connection with the duct work or in a plumbing system in connection with an automatic electric cistern pump. In either case it is undesirable and the objective in both is to eliminate it. While there are many ways to stop noise, methods used in one case may be employed in similiar noise insulating problems with the result that the experience described in this article has many applications.

A pair of 16 gauge galvanized iron pans 1¼ in. deep was then fitted snugly into the box and another layer of ¾ in. hair felt placed in the pan. On the felt was laid a platform of 3 in. planks well fastened together.

The blower was then bolted to this platform with the bolt heads underneath. Each bolt head countersunk and drawn against a large washer.

This base proved to be surprisingly rigid and at the same time completely shielded the floor from all vibrations.

A system of felt and cheese cloth lined composition baf-

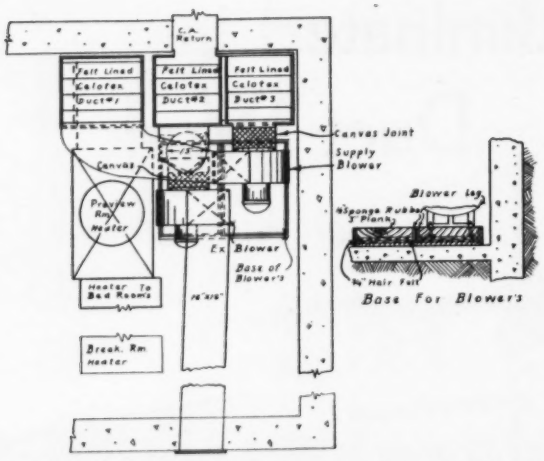

Fig. 2—This sketch shows a plan view of the arrangement of the heaters, the blowers and the insulated ducts. The detail sketch, in elevation at the right, indicates how the blowers were insulated from the concrete floor

fle boxes and felt covered baffle boxes prevents all sound transmission through the supply and exhaust ducts.

Great care was taken in designing these insulated baffle boxes, to set the baffles at an angle which would bring all the air in contact with the felt surfaces and yet retard the air flow as little as possible.

Proper allowance was also made for the increase in static pressure due to the dynamic resistance of these baffles.

This noise proof system is functioning perfectly where even a hint of sound would be objectionable and has required no attention except the regular oiling of the machinery.

Excess Heat Problem Solved

The preview room is large, with a 20-ft. ceiling. The main entrance to this room is on a balcony, the floor of which is 10 ft. above the main floor. The heat for this room is introduced into the ceiling through two ornamental ceiling grilles and is exhausted through grilles in the side wall at the floor line.

The major problem was to overcome the accumulation of excessive temperature on the balcony. With a 70 deg. Fahr. breathing-line temperature on the first floor, the temperature on the balcony quickly built up to 94 deg. Fahr. Entering the room seemed like walking into an oven.

This disagreeable feature was overcome by a special duct, with a mixing damper. This duct is connected to the wall of the balcony and delivers cool air against the ceiling of the balcony, thereby reducing the balcony temperature to normal.

It is to be noted that the ducts were constructed of sound insulating material and, further, lined with felt throughout their entire length. This suggests the question as to whether or not it is necessary to insulate to such a great extent and what are the relative values of partial insulating schemes. The answer is found in test work which just recently has been completed at Madison, Wisconsin, by G. L. Larson and R. F. Norris in cooperation with the American Society of Heating and Ventilating Engineers and reported in the journal section of *Heating, Piping and Air Conditioning.*

Description of Test Apparatus

A 30-ft. duct was used for these tests and was made up of interchangeable 2-ft. sections. Each section was 10 by 10 in. on the inside. This permitted various combinations ranging from all lined to all unlined ducts. The duct metal was 26-gauge thickness. Each 2-ft. section of unlined duct had a stiffener rib at one end. The lined sections had an enlarged casing on the outside 12 by 12 in. This provided a cavity one inch thick into which a one-inch layer of wood fibre insulating blanket was laid. This blanket was covered on the inside with perforated metal which had 32 holes per square inch. These holes were 0.075 in. in diameter and were made by punching. Another scheme of lining was used whereby the wood fibre insulating blanket was held in the duct by four

Fig. 3—A second problem was encountered in this preview room. The temperature at the main entrance, which is on a balcony, would build up to as high as 94 deg. Fahr. when the breathing line temperature in the room was only 70 deg. Fahr.

Fig. 4—This living room view gives a further indication of the type of building which was being heated. Although the building is large, the space available for the ductwork was very limited, thus complicating the problems

¾ by ¾-in. angles cut from the perforated metal.

In order to make certain that the measured ventilating noises were all coming through or from the duct, the blower and motor drive were completely boxed in with sound insulating material. The fan was connected to a 12-in. circular metal duct by means of rubber lined canvas.

Insulation at Intake More Effective Than When Placed at Discharge

The chart shown in Fig. 5 is a graphical picture of the ducts arranged in order with the most quiet arrangement first, or at the top. Referring to the code, it is seen that the 2-ft. sections marked X are lined with wood fibre blanket which is covered with perforated metal. As would naturally be expected and as is shown by test No. 1, the duct which was lined throughout its entire length was most effective in eliminating sound. The most interesting part of the experiment was in the placing of insulation when only part of the duct was lined. A comparison of tests No. 5 and No. 9 show that 6 ft. of insulation at the intake is better than 18 ft. of insulation at the outlet. To quote the report:

"There seems to be very little difference from a noise standpoint, whether or not the acoustical lining is covered with perforated metal. What little difference there is seems to favor the metal covering. It is quite evident that the lining placed at the inlet results in a more quiet duct than one that has the same or even more lining at the discharge.

"It goes without saying that all noises should be eliminated at their source, if possible. Quiet motors and fans should be specified, and they should be mounted on special foundations designed for absorbing vibrations. Fans should be connected to the duct system by means of canvas connections at both inlet and outlet of fan. Endless belts should be used where motors are not direct connected to fans. In special cases, it may be necessary to treat the fan room with acoustic material.

"But even if all these precautions are taken, considerable noise may be carried by the duct system from the fan room to the rooms served, or disagreeable noises may be developed in the duct system itself, particularly in systems using high air velocities. The tests show that these noises can be greatly reduced by lining the ducts with sound absorbing material. As would be expected, the best results are obtained when the entire duct is lined.

"When lining the entire duct is not practical, it is more economical to line at the inlet than it is to line at the outlet. However, it may be necessary to place some lining near the outlet of long ducts in order to absorb noises developed in the ducts themselves.

"Acoustic material with a perforated metal surface does not increase the resistance to air flow above that in an unlined metal duct. The same acoustic material without the perforated metal surface has about the same

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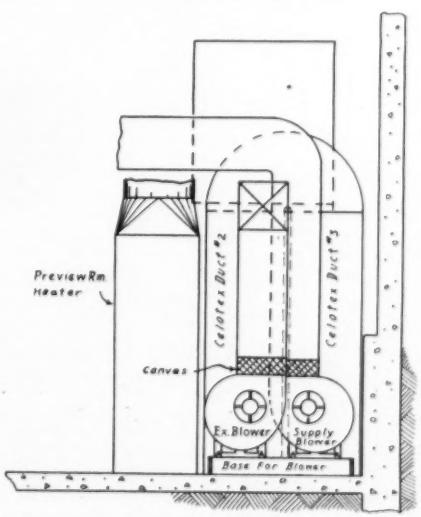


Fig. 5—Elevation drawing of the lay-out in Fig. 2. Note the canvass connection, the insulated ducts and the blower base

At least 35 groups of hospitals similar to the Connecticut group alone have been built as a result of

The Government's Construction Work

By R. M. STARBUCK

A 200 percent increase in 1931 is slated for public building according to what has proven to be a reliable estimate

ARTICLE NO. 3

THIS is the last article in a series of three on this subject. For the information of those who have not seen the preceding articles, we need to state that the United States government through the U. S. Veterans' Bureau at Washington, is erecting or has already erected, something like thirty-five or forty of these extensive hospitals in various sections of the country.

The planning and equipment of these hospital plants is so much standardized that a study of one hospital is equivalent to a study of others.

In this series of articles we are studying the hospital that is now nearing completion at Newington, Conn., a few miles outside of Hartford.

As stated in our first article, the entire hospital plant includes eight buildings.

These buildings will accommodate in the most modern manner, 250 disabled war veterans from

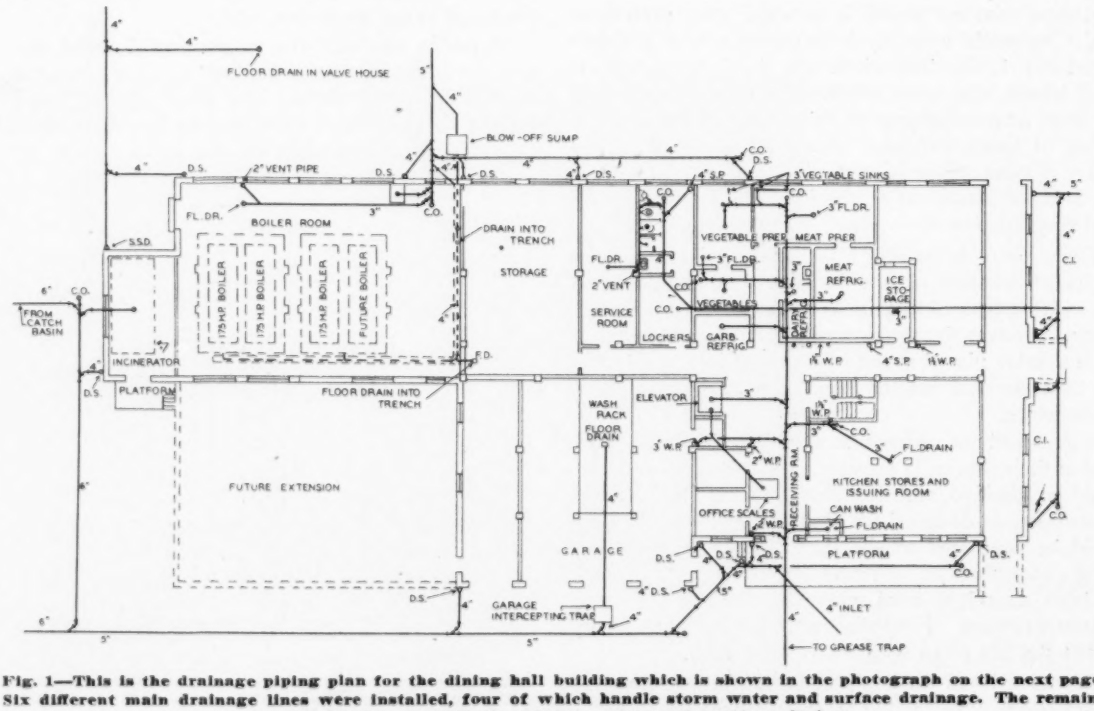
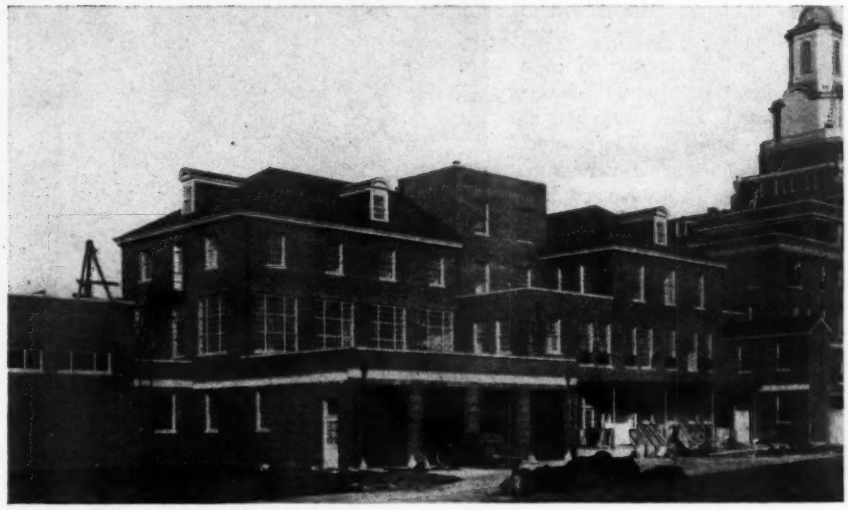


Fig. 1—This is the drainage piping plan for the dining hall building which is shown in the photograph on the next page. Six different main drainage lines were installed, four of which handle storm water and surface drainage. The remaining two handle, respectively, kitchen waste and sanitary drainage



The dining hall building which is described in this article and a plan of which is shown in Fig. 1 is only one part of the entire United States Veterans' hospital group at Newington, Conn. A total of eight buildings are included in the group

Connecticut, Rhode Island, and the Cape Cod section of Massachusetts.

In this article we shall take up the dining hall building, and nurses' quarters, with other general considerations.

In Fig. 1 is shown the drainage piping plan for the dining hall building.

In some respects the drainage piping for this building is more interesting than that of either of the other buildings previously considered. For the service of this building six different main drainage lines are installed. Four of these lines handle storm water and surface drainage, one line handles the kitchen waste and the sixth line takes care of the sanitary drainage.

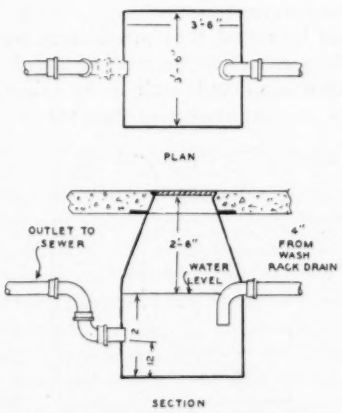
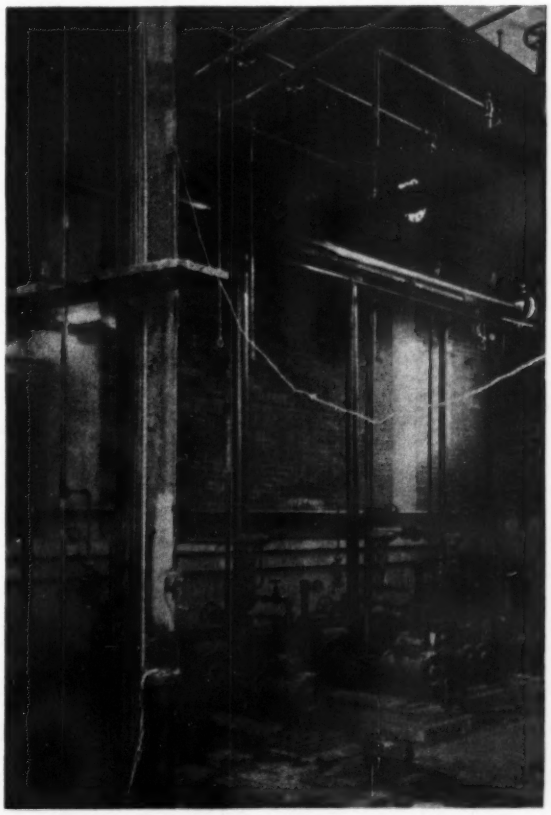


Fig. 2—A plan and sectional elevation of the garage catch basin. In operation, it discharges into one of the storm water drains

Surface Drainage Lines

The principal service rendered by the surface drainage lines is the handling of fifteen 4-in. downspouts. In addition, these lines handle the floor drain in an outside valve house, the drain from the incinerator, drainage from the boiler room and drainage from the garage, which is in the rear part of this building.

In the boiler room a trench, which is shown in Fig. 1 by broken lines, is carried around two sides of the room, and into it two floor drains and a drinking fountain discharge. At the end of the trench a



Corner of boiler room, showing pumps for various lines of service

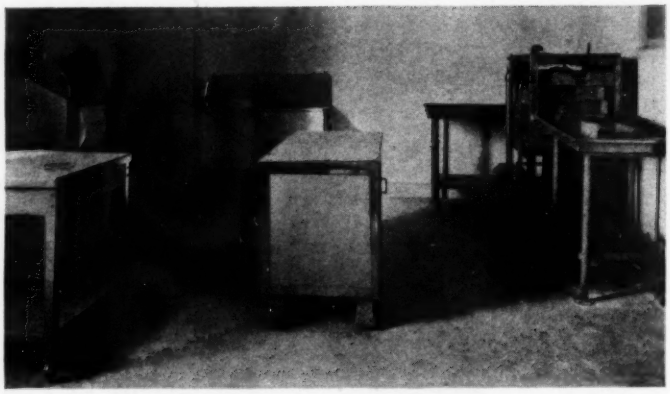
4-in. pipe connection discharges the trench to the storm water main.

Drainage from the boilers is carried in a 4-in. pipe running in this trench, and discharging into the blow-off sump. This sump acts as a condenser. Inasmuch at it is underground, no other means of condensing is necessary. From this sump the water is discharged into one of the storm water drainage lines. Two floor drains also empty into the trench. The sump is vented.

In the case of the garage, the drainage from the wash rack is carried to a garage intercepting trap or catch basin, which dischargees into one of the other storm water drains. A plan and a sectional elevation of the garage catch basin are shown in Fig. 2.

All the kitchen drainage discharges into a separate 4-in. line and this is discharged into an underground grease trap. Some of the drainage that this line receives is from the meat refrigerator, ice storage, dairy refrigerator, garbage refrigerator, vegetable storage, vegetable and meat preparation rooms, kitchen store room and can wash.

An idea of the construction and operation of the can wash may be obtained from Fig. 3.



Kitchen equipment in one of the service rooms

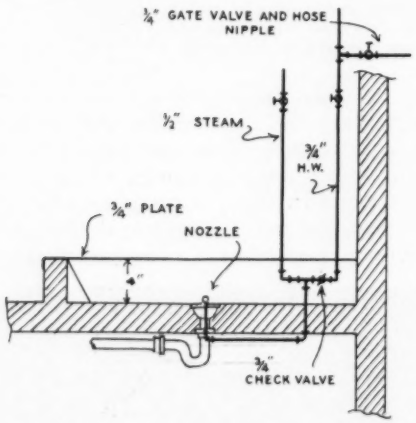


Fig. 3—An idea of the operation and the construction of the garbage can washer may be obtained from this drawing

Grease Trap Provided

Into the grease trap line several waste lines discharge which serve the kitchen on the floor above. A detail of the kitchen drainage connections is shown in Fig. 4.

The kitchen drainage includes the handling of the wastes from two double sinks in the kitchen, several floor drains; sink, etc., in the dish-washing room, cook's refrigerator, and from the steam tables and urns in the service room.

It should be noted that in addition to discharging all kitchen wastes to the underground grease trap, each kitchen sink and each dishwasher is provided

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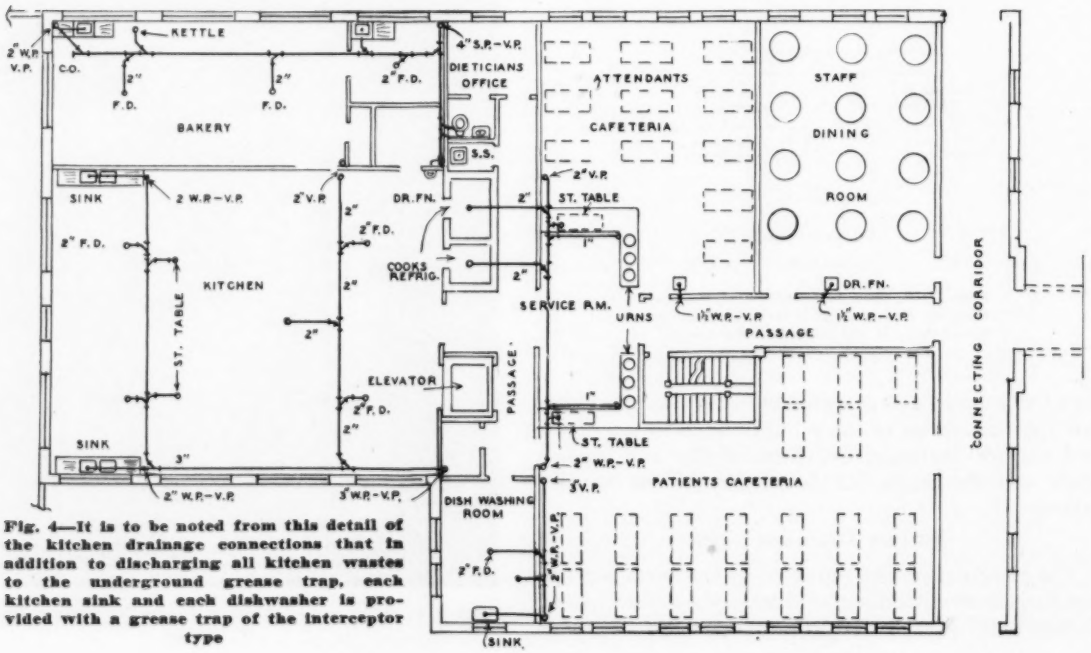

Fig. 4—It is to be noted from this detail of the kitchen drainage connections that in addition to discharging all kitchen wastes to the underground grease trap, each kitchen sink and each dishwasher is provided with a grease trap of the interceptor type

"More time at the local and national conventions could be given profitably to discussions by experts on various aspects of the problem of research possibilities. Only in this way can the industry keep in the forefront of the increasingly rapid march of progress and get its legitimate share of the unmortgaged dollars of the community."

The Possibilities of Plumbing Research

By R. G. Tyler

WHILE many of the industries are awakening to the importance of research in the solution of their problems and the bringing about of new developments in their industry, the plumbing trade has just begun to realize these possibilities in its own industry. There is a feeling that research is too academic to be of value and that what is desired is something more practical. In fact, such research as has been carried on has been almost entirely limited to matters having an immediate practical application. The purpose of this article is to call attention to the way in which research is being used in other industries and to suggest that the sooner the plumbing trade takes advantage of all available research possibilities, the better will it be enabled to keep up with the rapidly increasing progress being made in so many fields of industry.

For a long time some of the larger and more progressive industries have been using experts in their research laboratories for the solving of problems connected with the design and manufacture of their products and the carrying out of pioneer investigations which have opened up new, and, in some cases, altogether unexpected methods, materials and markets. The General Electric Company, Westinghouse, and the Radio Corporation, for example, have demonstrated the possibility of making an extensive and profitable use of research in their respective organizations. There are also a large number of commercial research laboratories which are supported by industry and the increasing number of such laboratories is evidence of their usefulness and the fact that industry is gradually becoming research conscious.

In plumbing there has been only a slight use of those research facilities which are available. The first noteworthy effort along this line was that of the Hoover sub-committee on plumbing, working through the United States Bureau of Standards. The work of this committee has been epoch making in the plumbing world and while its work has been appreciated by the trade, the renaissance which it has inaugurated has but just begun and what has been accomplished should suggest to the plumbing imagination something of the possibilities which may be forthcoming from further research. Plumbing research at the University of Illinois has been carried on for some years, while a fairly extensive program has been going forward at the Carnegie Institute of Technology. All of these researches have necessarily concerned themselves with those problems which were most pressing and urgent in their demand for a solution and have dealt with the fundamental principles of design and operation of plumbing systems. The danger is that the trade may assume that all of its problems have been solved and the last word written in this direction. The progress made has already outstripped the understanding which many master plumbers have had of these fundamental principles, but in this respect at least the trade has shown itself alert to the situation. It has encouraged and taken advantage of the conferences that have been given at numerous institutions of higher learning where the plumber and the expert in the various fields of science, both pure and applied, have been able to meet together and discuss these principles, so that individual plumbers are becoming much better informed in regard to such matters than heretofore. At the M. I. T. conferences, for example, inaugurated through the efforts of the writer with the able co-opera-

tion of the Massachusetts Master Plumbers Association, the fact that the trade has been awake to the possibilities of such co-operation has been amply demonstrated.

Research in other industries reads like a romance. For example, the silkworm has been outdistanced in the competition, coal has been painted, and carbon dioxide ice has been developed for use in preserving perishable food products

Perhaps it may be illuminating to mention a few examples of what has been accomplished through research in some of the other industries. The type of problem which has been presented to the research expert has covered a very wide range but some of these problems may be cited to indicate the way in which use has been made of research. Take, for example, the recent accomplishment in the field of coal. A producer submitted to his research experts the problem of trademarking his coal according to the following specifications: Each lump of coal was to be trademarked or stamped so that the marking would not rub off in handling or be washed off by rain, while the cost should not exceed twenty-five cents per ton. The problem, on the face of it, looked hopeless, but it was taken into the laboratory with the result that there finally emerged what is now called "Blue Coal." Much information concerning the absorption of pigment by surfaces was accumulated and many problems incidental to the treatment finally adopted had to be worked out, but the fact that blue coal is on the market today is evidence that the problem was satisfactorily solved. In fact, the result obtained greatly surpassed the producer's original hopes.

A development where research has played an important part that reads like a romance and that has been going on for a number of years, has been that of the rayon industry. The early imitation silks were not very satisfactory, either as to appearance or durability, but improvement has followed improvement so rapidly that the silkworm has been outdistanced in the competition.

Or again, the manufacture of paper and press-board from corn stalks and similar products might tell an interesting story of the productiveness of research, as could also the use of dry ice or carbon dioxide snow with all of the possibilities its use as a refrigerant has opened up in the shipping and handling of fruits, vegetables, meats and other perishable products.

These examples taken from various industries will serve to illustrate what has been done in other fields and to suggest something of the possibilities that may lie ahead of the research expert in the plumbing field. It is unwise to assume that any problem, however difficult it may appear, cannot be solved through research, and there are many problems in plumbing concerning which more information would be useful. Take, for example, the use of welding, which is becoming more prevalent in plumbing. There is need for the developing of welding methods for carrying out the type of work required in plumbing. No one can predict, judging from present practice, many of the uses to which welding will be put in future plumbing. Or again, take the new corrosion resisting materials that are being developed, particularly in Germany. The possible uses for such materials will undoubtedly far outrun present predictions and there appear almost daily new alloys which are particularly adapted to special uses. Some of these alloys should play an important part in plumbing layouts, especially in installations in high buildings where light but strong construction is desirable. Some progress is being made at the present time looking toward the simplification and standardization of plumbing layouts which permit the use of specials that bring about considerable savings in labor and materials.

As above mentioned, most of the research in plumbing has heretofore dealt with certain fundamentals in design and construction, and have had to do largely with problems of health and safety. Some of the problems have been concerned with a greater economy of construction, and a large number have dealt with controversial matters such as code requirements, specifications, etc. There is another element, however, that is becoming more important in the life of the average citizen and that element is *convenience*. It is probable that there is much that could be done by research into the ways in which plumbing practice can be modified so as to increase the elements of convenience to the customer. It would be difficult to define all that makes up this factor of convenience, but it is a matter in which both the manufacturer and the master plumber should be vitally interested.

Color and arrangement of fixtures for beauty of installations, the analysis of systems for the elimination of noise and the promotion of sales are but a few of the many subjects which should offer a ready return on the investment in research

One of the developments which the writer has been watching with interest has to do with beauty or the greater attention to the artistic in the manufacture and in the arrangement of plumbing installations. This is showing itself in the use of color and in the modification of lines together with the grouping of fixtures as in the case of bathrooms and kitchens. The use of colors and designs makes possible a greater range of choice on the part of the builder, with a corresponding opportunity for the expression of individuality in various parts of the plumbing layout. While much has been done in this field already, it would furnish most interesting problems for research.

A few suggestions may be of interest as indicating ways in which the research expert might be used to advantage along other than the usual lines. The problem of noise, for example, in the discharge of fixtures is readily analyzed into its component causes and research should develop methods of eliminating noise in plumbing systems. Or problems entirely removed from the design and construction of plumbing systems should be studied, as for example, the numerous aspects of marketing. The promotion of sales in plumbing is a field to explore at the present time and one which should offer a ready return on investment in research. Certain

(Continued on Page 88)

An installation in "our own home town."
Pennsylvania Telephone Corporation's new warehouse in Erie, Pa.
Meyers & Johnson, architects.
Upton & Lang Co., general contractors
Clougherty & Hilbert, plumbing contractors.

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EVERY day, more plumbers are getting *permanently tight* connections—and using *fewer fittings*—with the Hays Double-Seal.

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and joints are *double-sealed*

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HOLDS TIGHT. The Hays Double-Seal principle with two contact surfaces—a 45-deg. and a 90-deg. seal—makes a joint that *meets any test the pipe and fittings will stand.*

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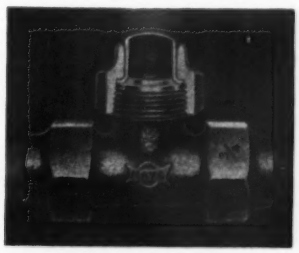

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HAYS
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267

Group Connections

for Lavatories, Sinks, and Other Elevated Fixtures

By S. M. BARR

Article No. 2

IN A PREVIOUS article on this subject, fourteen variations were shown in the practice of making waste and vent connections for groups of elevated plumbing fixtures. This type of fixture, in distinction to fixtures such as water closets and urinals having floor

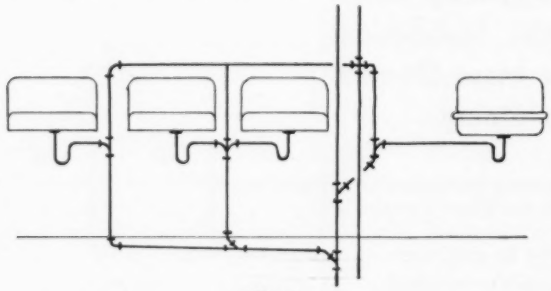

Fig. 2

outlets, includes such fixtures as sinks, lavatories, drinking fountains, etc.

In this present article even more group combinations than in the first article shall be shown.

All of the illustrations are copied from pilot drawings of leading cities of the country.

It is generally considered that a pilot drawing is a guide, and a guide is of small value unless it leads one in the right direction, whether it be in the backwoods of Maine or in plumbing practice. We find, however, that because a certain practice appears on a pilot drawing is no guarantee that it is a good practice. It is an interesting thing, however, to find what kinds of methods are held up as examples to be followed.

Fig. 1 represents a very acceptable plan of connecting a long line of lavatories or other elevated fixtures. This provides for unit-venting pairs of fixtures, with a common continuous vent for the odd lavatory.

One pilot drawing shows the connections appearing in

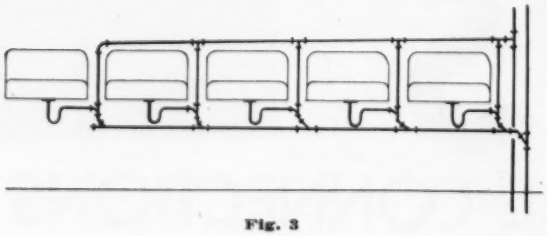

Fig. 3

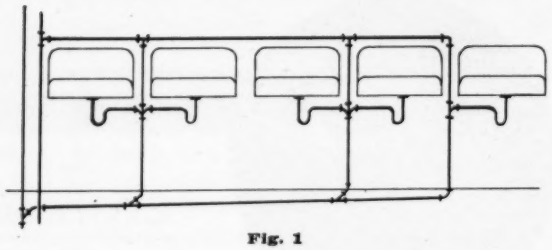

Fig. 1

Fig. 2 as an example of good work. Everything about it is O.K. At the same time it would be possible to make a simpler and less expensive layout by pairing the two left-hand fixtures and doing likewise with the two right-hand fixtures. In the case of the fixture at the extreme right in Fig. 2, the vent and trap could not be separated by more than five feet according to general practice, and often not over three feet is allowed.

In many cases long lines of lavatories are connected as in Fig. 3. There is not a thing wrong about this method, but the use of the method of Fig. 4 is identically as good, with a considerable saving in expense. The city whose pilot drawing shows the individual connections as in Fig. 3, would probably not allow the method of Fig. 4.

It hardly need be pointed out that many groups of elevated fixtures are installed with these individual vents, but with the vertical wastes carried down to the floor into a main line of waste carried under the floor.

No doubt the general idea that prevails concerning circuit and loop venting is that it is for use almost exclusively in connection with water closets, slop sinks, floor urinals, etc., in fact for fixtures having floor outlets, and not for elevated fixtures. While this idea does largely prevail, it is certainly wide of the mark, for many cities make use of circuit and loop venting for lines of elevated fixtures also.

Some plumbing codes limit the use to lavatories, and of course that is the chief use as far as elevated fixtures

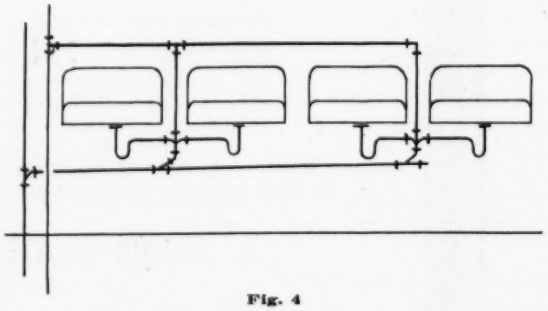

Fig. 4

are concerned, because other elevated fixtures are used in batteries much less frequently than lavatories.

We agree that as far as water closets are concerned, the use of circuit and loop venting is practically universal, but our study of the subject shows that these vents are also being used for groups of elevated fixtures in a great many cities and towns, as proved by numerous pilot drawings.

Fig. 5 shows a layout allowed for batteries of sinks and lavatories in a leading city. In addition, it may be said that the state plumbing code of Wisconsin recom-

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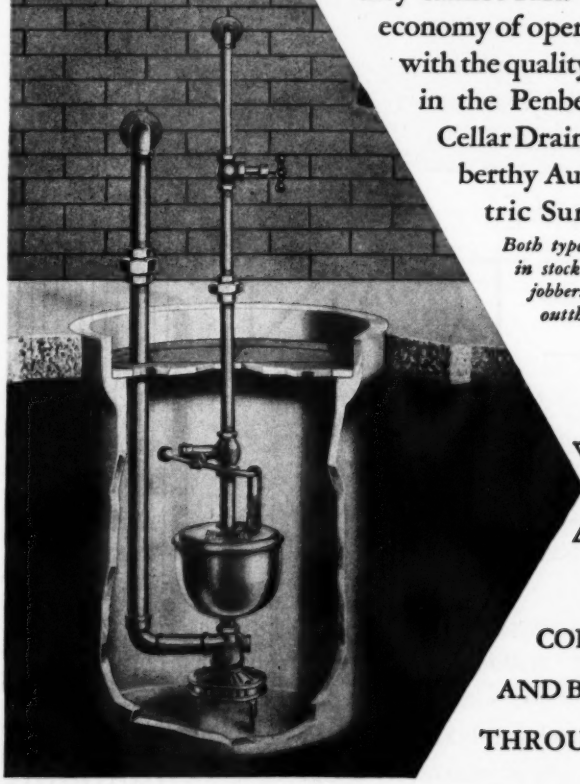
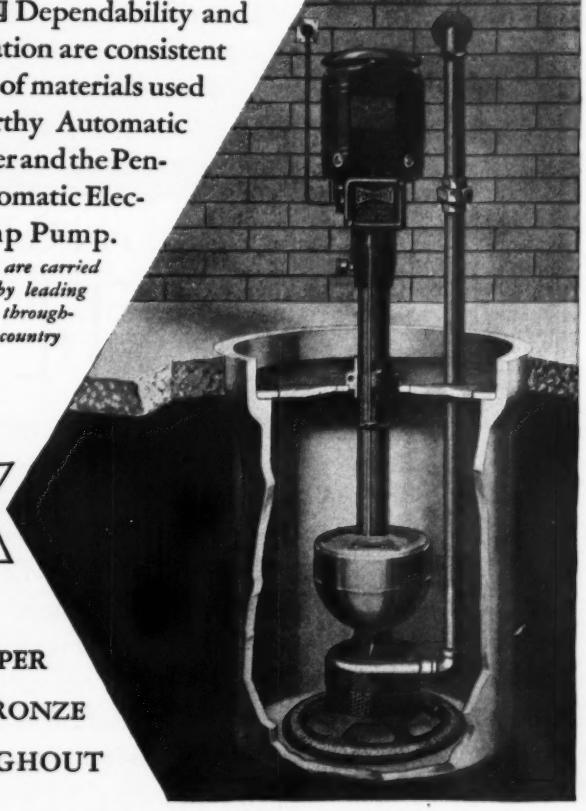


Automatic Electric Sump Pump



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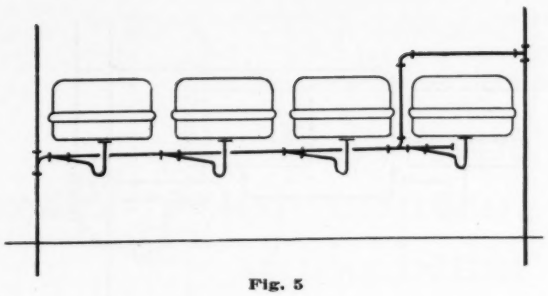


Fig. 5

mends and illustrates just such work as shown in this illustration.

Another drawing shows the layout of Fig. 6, which illustrates the use of the loop vent.

In each instance the rising section of the vent is taken off the main line of waste between the last two fixtures on the line. This allows the last fixture to wash the bottom of the riser and thus carry off all scale, rust, etc., that may collect at that point.

There are several features concerning the use of circuit and loop vents on batteries of elevated fixtures that are of importance, and which should be clearly understood.

Horizontal Wastes

In the first place it should always be borne in mind that in this style of venting the main horizontal line of

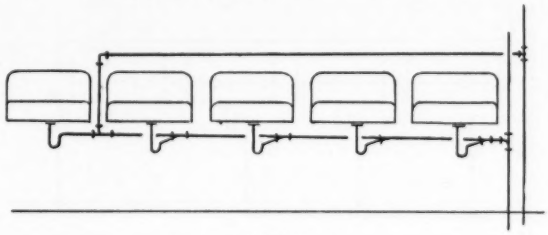


Fig. 6

waste acts in a double capacity, as a waste and as a vent pipe. While waste is being carried in the lower part of the pipe, air is travelling in the upper part of the pipe to supply air to the several traps and thus prevent any possibility of siphonage. This means that if the main waste on one of these batteries of circuit or loop-vented fixtures is too small, it may at times become completely filled with waste, and then all possibility of venting is at an end, and there is immediate danger of trap siphonage. Therefore when circuit or loop vents are used on lines of elevated fixtures, it must be seen to that the main line of waste is of such size that it can never be completely filled, even in the event that all fixtures are discharged at the same instant.

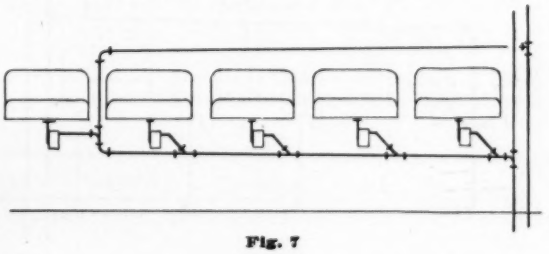


Fig. 7

Another point to be seen to is that the waste connections from the trap into the horizontal main be made in such a way that discharge of waste into the main line will not cause a curtain of water to be formed across the pipe at the point of entrance. It will be seen that such a happening closes the upper part of the pipe as a vent space during the period that the curtain exists. If several of these so-called curtains should be set up at the same instant, the effect would be even more serious. What we have reference to is illustrated by the connections shown in Fig. 7, which are taken from the pilot drawing of a leading city. Here the waste from each

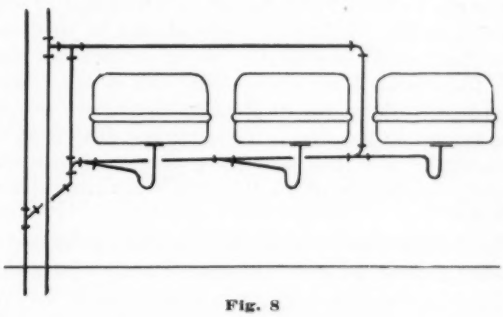


Fig. 8

trap enters the main waste line at an angle of forty-five degrees, and each time a fixture is discharged, the curtain we speak of is formed. Compare this kind of connection with those shown in Figs. 5 and 6, and you will see the point we are trying to bring out.

In Figs. 5 and 6, the waste enters the main line in a horizontal direction, and discharges smoothly into the lower part of the pipe, without forming the curtain.

Another point against the angle connections in Fig. 7 is that in all circuit, loop and continuous venting, only traps having horizontal outlets should be used. When trap connections are made as in Fig. 7, there is a greater tendency to siphon, for the outlet arm is longer than

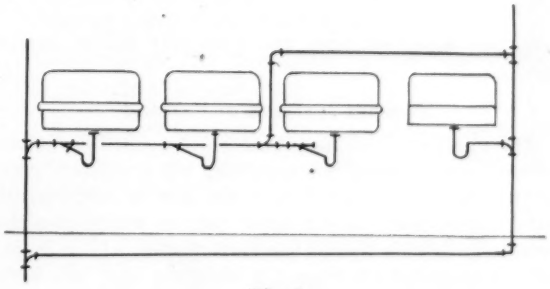


Fig. 9

the depth of the seal, making siphonic conditions more likely.

In the running of circuit and loop vents for elevated fixtures, the horizontal line should never be run at a sharp pitch. That would mean that with a considerable use of the fixtures enough waste would rush to the lowest part of the line to fill the bore and thus close it for vent purposes.

While our illustrations do not show a double battery of fixtures, this is a common thing, but requiring no special comment.

Fig. 8 shows a wise provision in the use of a relief

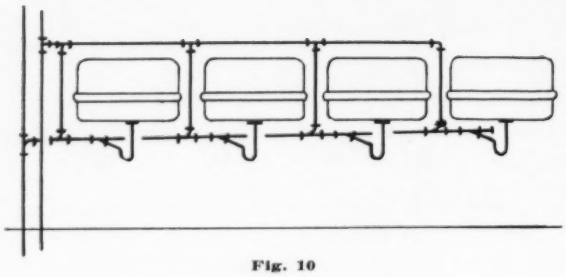


Fig. 10

vent at the front end of a line of circuit-vented or loop-vented fixtures. This relief vent should be used only when there is a considerable discharge into the stack from fixtures on floors above. The idea is that a heavy rush of waste down the stack might siphon one or more traps nearest to the stack. To overcome this effect, the relief vent is used, this vent being capable of delivering promptly the supply of air that will break this siphonic tendency.

Fig. 9 shows one of a group of fixtures connected up differently from the other fixtures. The riser into which the lavatory connects is the main vent line, and the lavatory performs the useful service of washing out of this

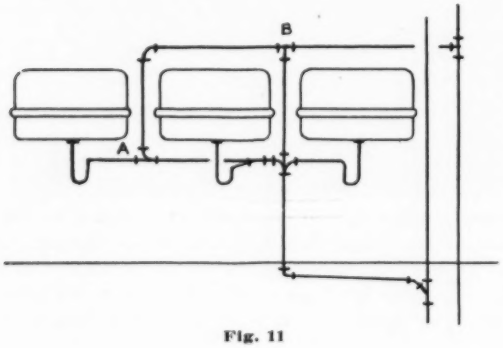


Fig. 11

vent line whatever scale and rust may collect at the bend.

Peculiar Instance of Venting

The method of venting shown in Fig. 10 is peculiar. It may be considered that each trap has a separate vent, or it may be considered that the line is loop-vented, with a relief vent at the other end, in which case the two vents in the middle are superfluous. If it is intended to give each fixture a separate vent, the horizontal line might be of a smaller size than if the line were to be loop-vented.

Figs. 11 and 12, taken from the same pilot drawing,

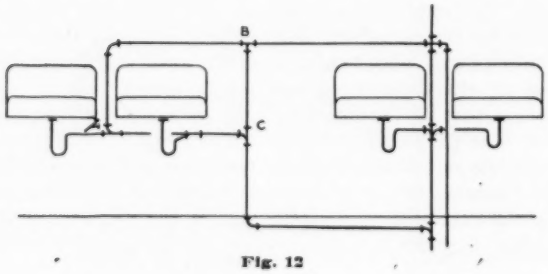


Fig. 12

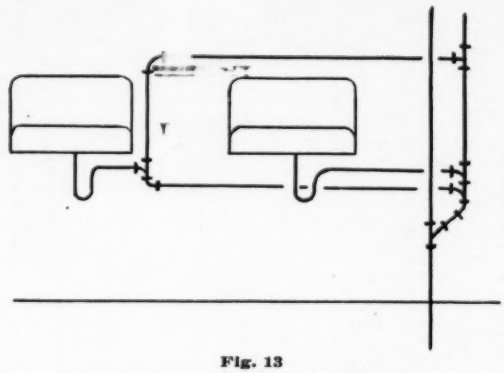


Fig. 13

show a freakish sort of venting for a group of fixtures, although there is nothing wrong about them. As far as we can see, the fixtures would still be vented in both layouts if the loop vent from A to B were to be omitted. Under those codes that call for a trap to be not more than three feet removed from its vent, the foregoing statement would not apply. In the case of Fig. 12, while the two fixtures would still be vented if A to B was omitted, it is also true that they would still be vented if the pipe B to C were removed.

Fig. 13 shows unusual connections. There is nothing wrong about them. Under some codes, probably the

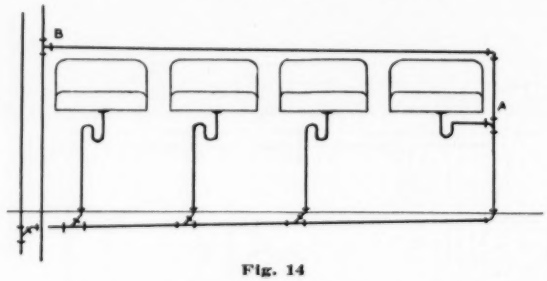


Fig. 14

lavatory at the left might be allowed to connect into the vent stack directly, in the same manner as the other fixture.

Disagreement in Principle

We come now to Figs. 14, 15, 16 and 17, each of which shows a certain principle to which we cannot agree. Each of the four layouts is taken from a different pilot drawing, so it will be seen that although presenting wrong practice, the method is in considerable use, and that too, in a number of our larger cities.

We feel that if the loop vent from A to B were en-

(Continued on Page 151)

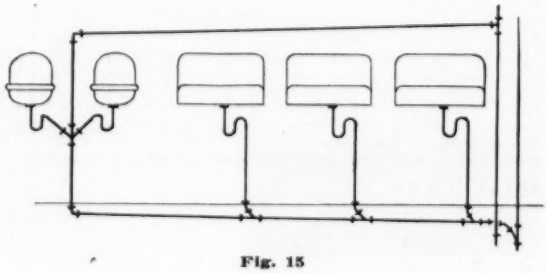
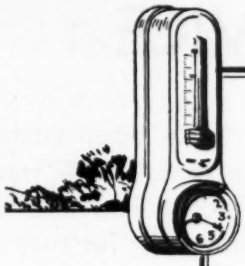


Fig. 15



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In *unbalanced* systems this means cold radiators, then hot radiators, particularly where the burner is controlled by a thermostat in a so-called "key" room. It means underheating in some rooms and overheating in others, depending on how well the thermostat has been located.

With the same situation and an IMPROVED Type "R" System, practically any room in the house is a "key" room because *all radiators in the house receive steam at the same time and in proportion to the need for steam.* Room temperatures are surprisingly even, regardless of their distance from the source of heat, and maintain that uniformity in spite of fluctuating pressures at the boiler.

This remarkable improvement in heating service is accomplished by incorporating in the well-known Webster Type "R" System a series of specially selected metering orifices at the entrance to every radiator . . . restricting the flow of steam in varying degrees so that the "pressure drop" is *equalized* and *balanced* throughout the entire system. The results . . . Quick heating-up, more even room temperatures, better control with the newer fuels, the newer types of light weight radiation and the new regulating devices. Better performance too, with the older fuels and cast iron radiation.

A Real Modernization Opportunity

The opportunity for preferred business with Webster Type "R" Systems is better than ever with the IMPROVED Type "R" System. Now you can offer a still more advanced heating system to prospects or modernize existing installations at worthwhile profit. Send the coupon for the IMPROVED Type "R" System Bulletin—and let us tell you more about this modernization opportunity.

Warren Webster & Company, Camden, N. J.
Pioneers of the Vacuum System of Steam Heating
Branches in 60 principal U. S. Cities—Darling Bros., Ltd., Montreal, Canada
a R 27

-since 1888
Webster
Systems of Steam Heating

D. E. 1-24-31

WARREN WEBSTER & COMPANY, Camden, New Jersey:

Please send me your Bulletin describing the IMPROVED Webster Type "R" System and information on modernizing older heating systems.

Name..... *Address*..... *City*.....

RETAIL ADVERTISING SERVICE

Is the plumbing in your home efficient?

CHECK your plumbing equipment now. Have you an Efficient Sink, Swing Spout Faucet, Automatic Water Heater, Laundry Trays, Built-in Tub, Shower Equipment, A Modern, Quiet Toilet, An Extra Bath, Chromium Fittings.

Each of these contributes to comfort and convenience, and so to efficiency, relieving you of much drudgery and speeding routine tasks.

We'll be glad to inspect your plumbing — without charge.

(In this space Your Name, etc.)

For one column space

Dear Madam:

When the new kitchen sinks were designed, the important matter of adjustable height was considered so that the woman in the home would not have to stoop and so become tired. When the new chromium fittings--faucets, etc.,--were designed, it was to make it easy to keep them clean. The built-in tub was made to eliminate the hard-to-get-at-corners back of the old tub on legs. Automatic water heaters were designed to give the housewife all the hot water she might need, at the turn of the faucet.

And so on for all modern plumbing. Comfort and convenience has been the watchword of the manufacturers, who have had the advice of women expert in domestic matters as to what the woman in the home wants.

Perhaps you have not visited our store lately. We urge you to do so. You will find the modern refinements in plumbing here. We shall appreciate a visit--without obligation, of course.

Very truly yours,
HARRY BROWN

A plumbing sales letter

FOR some men in our own field there was, during 1930, no such thing as "poor business." One man calls it his "banner year." Others report increases in volume; some report decrease in volume, but, because of more careful selling, increases in profits. The important thing is that they have gone where business is to be found—in existing homes. They have made special efforts to sell remodeling jobs.

More important than all, they have not let down on their selling efforts. They have kept their names before the people of their community. Since new building is off, they have urged modernizing. They have sold specialties. In these two pages there is the kind of copy that will help the contractor get the kind of business that is profitable—business, for the most part, that is sold without competition. It will put him in touch with home owners, today interested in making their present residences as comfortable as possible, tomorrow, perhaps, interested in talking over the plans for a new home.

▲

The copy on these two pages is for the use of readers of DOMESTIC ENGINEERING —without charge. If you wish to use the illustrations, they are sold at $4.20 for twelve —three month's service.

If you are using any of this copy, send us samples. We like to keep in touch with what our readers are doing.

▼

WOMAN-DESIGNED PLUMBING FIXTURES

"Manufacturers of plumbing equipment have taken a leaf from the experience of automobile manufacturers," says Harry Brown, local plumbing contractor. "They have gone to experts in designing the newer fixtures for kitchen and bathroom.

"Take the kitchen sink, for example. If you don't think about it, I suppose one sink is about as good as another. But there is as much difference between sinks as between one auto and another. For example, what's the sense of putting up a sink at a certain height? There are tall women for whom that height is insufficient. So the sink can be adjusted to the proper height for the woman who is to use it.

"That's only one piece of equipment. Experts in domestic science—and I mean by that women expert in housekeeping—put their experience and their wants before these modern plumbing manufacturers. The result is beauty as well as utility in plumbing—efficiency in colors—and what colors!"

Hand this publicity item to your newspaper

To Modernize Old Heating Plants

It ought to be as easy, if not easier, to sell heating plant remodeling as to sell plumbing remodeling. Heating plants that do not function well put the family to immediate discomfort. The copy on this page is aimed at making people think of their discomfort.

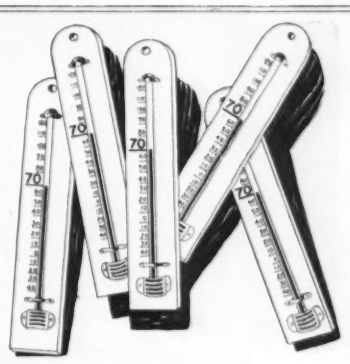
A two-column newspaper ad

Don't be cold one minute and overheated the next. It's sure to bring on colds. If your home is subject to sudden and large changes in temperature your heating plant needs attention. It is giving discomfort and wasting fuel

Don't go through the winter suffering discomfort and inconvenience when you can have perfect ease and even temperature with radiator heat.

Phone Main 123

(In this space Your Name, etc.)



How warm is each of your rooms?

If you have an efficient—radiator—heating plant, a thermometer reading in the dining room, the living room, the bed room, the nursery and the bathroom will be very nearly the same—as it is shown above.

If you have an inefficient, out-of-date plant, you have rooms that sometimes can't be heated at all, others that are overheated—and you are wasting fuel.

We are specialists in heating plant care and remodeling. Just phone. We'll send a competent man. He'll go over your heating system, give you a report on it, and make whatever recommendations seem necessary.

Don't endure discomforts and inconvenience from your heating plant. It really isn't necessary.

(In this space Your Name, etc.)

A single column ad

ADVISES TAKING THERMOMETER TEST

Harry L. Brown, local heating contractor, advises the taking of a thermometer test in the home during the cold weather. "People would be surprised," he says, "if they were to discover how much difference there may be between the temperature of one room and another—and it would explain a lot of colds, too.

"In many a home there are rooms that can't be comfortably warmed in very cold weather. That should not be. Every room should be quite close to the others in warmth—particularly where there are children—so that when one goes from one room to another he will not be subjected to too great a change in temperature.

"Incidentally," he concluded, "even temperature means fuel conservation—uneven temperatures mean fuel waste."

Give this publicity item to your local newspapers

Your Window

Window displays need change. If you have a permanent display of fixtures and equipment, make changes in lighting—use the free floor space for changed displays of accessories. Property owners who pass your window will never be particularly drawn to it if it remains the same in every detail for months at a time. Change—even small changes—is what draws attention to a window.

Dear Sir:

In the interests of fuel saving, you will find it revealing to test the temperature in each of your rooms. Note the difference. If it is too great, it means that your heating plant is in need of adjustment and is, consequently, wasting fuel.

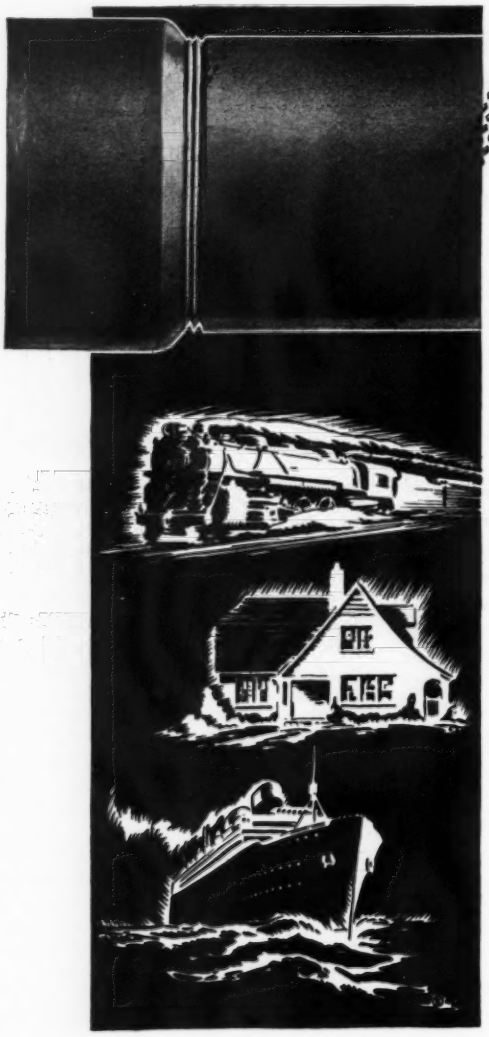
Besides this, it is quite likely that some of the winter colds are coming from this source. You can appreciate readily how one who is at all susceptible to colds, may contract one in passing from a room that is, perhaps, a little too warm, into one that is definitely below the comfort line.

It always seems to me that where I discover such signs of maladjustment in the heating plant, I always discover a heating plant that is demanding more attention than it should. In other words, the inefficiency upstairs means that closer attention to firing and control of the plant is necessary.

We'll be glad to make an inspection of your heating plant and to report what we find--without obligation, of course. Just telephone.

Very truly yours,
HARRY BROWN

(A heating sales letter)



NO OTHER PRODUCT WAS EVER PROVED BY SUCH TERRIBLE TESTING BEFORE IT WAS MARKED SO YOU CAN BE SURE OF GETTING IT . . .

Unfailing supplies of clear, sparkling water, unclogged heating lines, and freedom from repairs at low cost are made possible by metal tested for 83 years.

For 83 years Reading has been assuring clean water, unclogged pipe lines, and freedom from repairs for many, many years, by making pipe of genuine puddled wrought iron.

In modest home, in mansion, in factories and buildings, large and small, on locomotives, railroad cars and ships, under water, under ground, on the surface, between walls and floors, this pipe has been given all the terrible tests of service in every conceivable way for over four generations.

Only seven years ago, every inch of Reading Genuine Puddled Wrought Iron Pipe was marked with an indestructible indented spiral so that you can be sure of getting the pipe that has passed the tests of time.

It had to be marked because many people had become careless in using the word "iron". For many years "iron" had popularly meant puddled wrought iron as Reading made it then and still makes it. Quickly-rusting materials were developed that look like "iron", and often are sold as an "iron". But, of course, they failed to give the service which only genuine puddled wrought iron gives.

That's why, if you want permanence, freedom from repairs, and unfailing flow of water, air, gas, oil, or other liquids, look for the honest spiral, mark of the pipe that has been tested for four generations.

For information and quotations address

READING IRON COMPANY
Reading, Pennsylvania

Reading Products

Boiler Tubes	Heavy Castings
Pipe	Tubes
Nipples	Bar Iron
Couplings	Billets
Casing	Cut Nails

Use only Reading 5-Point Nipples with Reading 5-Point Pipe—you'll know them by the indented band, midway between the threaded portions.

For your protection this indented spiral forever marks all Reading Pipe.

READING *Science and Invention Have Never Found a Satisfac-*

PIPE *tory Substitute for Genuine Puddled Wrought Iron.*

SUPPLY NEWS

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

E. S. A. Fixes Dates for Spring Meeting

The Eastern Supply Association has fixed March 11 and 12 at the Hotel Astor, New York City, as the dates and place for its spring meeting instead of February as has been usual for some years. The change in time was decided upon in view of the two holidays and the shortness of February. An interesting and comprehensive program is promised.

◆

N. P. S. A. to Hold Sales Promotion Conference at Columbus

The first sales promotion meeting of the National Pipe and Supplies Association will be held at 10 a. m. on Friday, January 30, at the Deshler Hotel, Columbus, Ohio, according to official announcement just received from Secretary R. Kennedy Hanson, Pittsburgh, Pa. The meeting is open to all jobbers in Indiana, Ohio, West Virginia and western Pennsylvania, and they have been invited to send their sales managers and salesmen.

◆

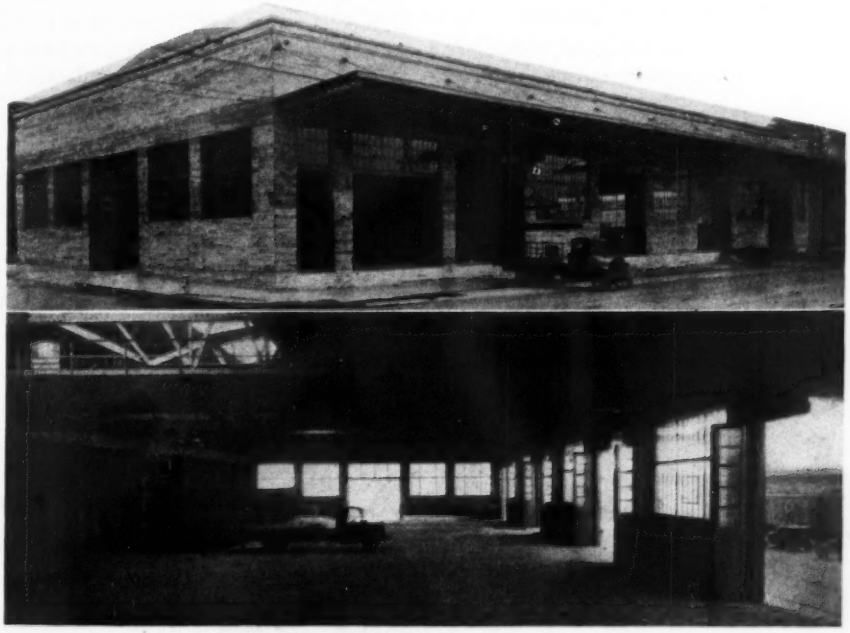
Central Supply Association to Meet March 25 and 26

The Central Supply Association will hold its spring meeting, its 106th regular meeting, at the Palmer House, Chicago, on Wednesday and Thursday, March 25 and 26, according to announcement just issued by Secretary R. Macfee of Chicago.

◆

Crane Co. Opens Modern Warehouse in Portland, Ore.

The new warehouse opened by Crane Co. of Chicago, in Portland, Ore., has besides its general efficiency arrangement several outstanding features. One of these



The new warehouse of Crane Co., Chicago, at Portland, Ore. A feature of the building is the wood-trussed roof, used out of a certain loyalty to the great woods of the Northwest

is a three-ton crane which not only operates up and down inside the building, but which also extends outside the door and across the nearby railroad tracks when loading is in progress. No transfering of the load is necessary no matter where it starts, as the crane is designed to meet all transportation requirements.

Another feature is the wood-trussed roof in place of steel construction and which was chosen out of a certain loyalty to the great woods of the Northwest, according to Crane officials. There are no interior supporting columns, thus leaving a clear floor for operations. The warehouse building is 200x100 ft.

◆

Hayes Corp. Builds Plant Addition

The Hayes Corp., Michigan City, Ind., has commenced construction of a new steel and brick foundry building adjoining its present factory. The new building will provide an additional 6,000 sq. ft. of space.

◆

Expands Service Facilities

Those units of Union Carbide and Carbon Corporation whose products are used in the main for oxy-acetylene welding and cutting are to market their products through The Linde Air Products Company, New York City. The new arrangement was effective January 1. No changes, however, have been made in the distributing stations.

◆

Arrange for the Manufacture of Products in Canada

Jas. P. Marsh & Co. and the Sargent Co., Chicago, divisions of the Commercial Instrument Corp., have effected an arrangement with the Jas. Morrison Brass Mfg. Co., Ltd., for the manufacture of their products in the latter's plant at Toronto, Ontario, and for the marketing of their lines in Canada and Great Britain.

◆

Opens New Showroom in Chicago

The J. L. Mott Co., Inc., Trenton, N. J., has opened a new showroow at 203 West Wacker Drive, Engineering Building, Chicago. The showroom has on display a line of plumbing fixtures for residences, schools, factories and hospitals, as well as ornamental fixtures. A large number of fixtures are shown under water so that their actual operation may be seen. E. A. Killey is manager of the showroom, and William R. Plum is sales representative.

◆

Will Manufacture Oil Burners

Organization of the Maise Corporation, headed by Herman C. Maise, former vice president and general manager of the Briggs Mfg. Co., to manufacture domestic oil burners, was consummated recently. The firm is located at Detroit, Mich. Directors of the corporation are: Charles B. Bohn, president of the Bohn Aluminum Co.; George W. Kennedy, president of Kelsey-Hayes Wheel Co.; Col. William G. Latimer, vice president and treasurer of the corporation; Clifford B. Longley, attorney, and Mr. Maise. C. Van Maanen is assistant sales manager of the corporation.

◆

Opens Office in New York City

Riverside Boiler Works, Inc., Cambridge, Mass., has announced the establishment of a district office at 11 West 42nd street, New York City. The interests of the company in the metropolitan area are under the management of B. J. Bourque.

◆

New Foundry Now In Operation

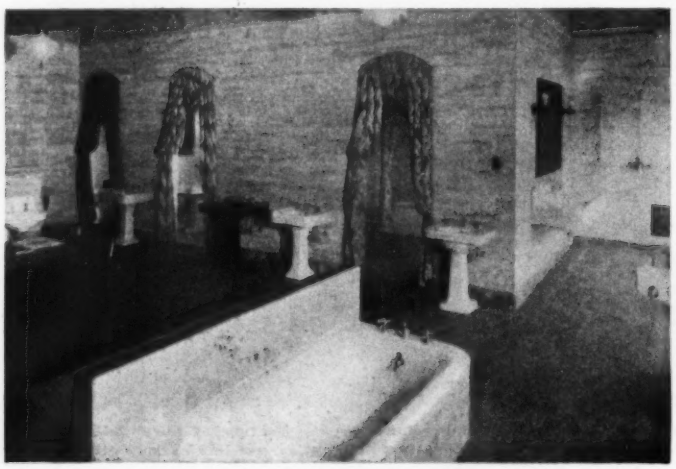
The Odin Stove Mfg. Co., of Erie, Pa., has moved its foundry into its new building at 1221 Walnut street, and is making all its castings, including floor drains, boiler stands, etc., in this plant. The old foundry will be used as an assembly plant. The company's offices will remain at 314-340 West Twelfth street, Erie. Myron C. Kline is in charge of the foundry.

◆

New Lummus Company Organized

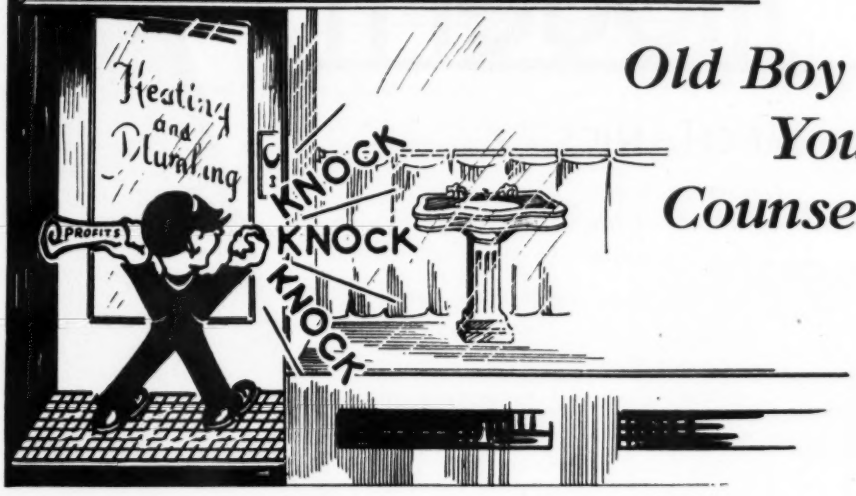
The Lummus Company, a new engineering and contracting firm having authorized capital stock of ten million dollars, has been organized to take over the business of the Walter E. Lummus Company of Boston, Mass. The Superheater Co. and the Babcock & Wilcox Co. hold substantial blocks of stock in the new firm. The new concern will follow the lines of activity of the Walter E. Lummus Co., but on a larger scale.

Officers of the new Lummus Company are: Walter E.



A view of the new showroom of J. L. Mott Co., Inc., of Trenton, N. J., in the Engineering building, W. Wacker drive, Chicago

HEATING and PLUMBING



Old Boy "X" Brings You Wise Counsel for 1931

A Bearer of Good News is Old Boy "X" He's Knocking at Your Door

He is chockful of business building, profit making sales plans that have rung the bell on the old cash register for thousands of master plumbers and heating contractors last year when the calamity howlers said there wasn't any business to be had.

These wise men didn't use any magic nor employ high pressure salesmanship. Nor were they lucky.

They were successful because they knew that there was plenty of profitable business for the seeking. They went out and got it. That's the story of their success.

Old boy "X" will tell you that these business getters dug up *profits right in their own neighborhood.*

Your Neighborhood is Your Green Pasture

The wise business man, the go-getter, knows that repairs, renewals and accessories *replace profits* lost by the building decline.

He knows that "X" Boiler Liquid is unequalled for rapid and satisfactory repairing in high and low pressure boilers, hot water systems and *heating plants fired by oil burners.*

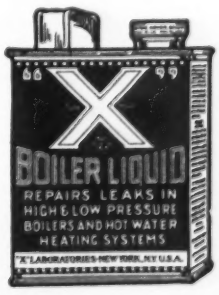
Right in your neighborhood hundreds of homes, hotels, industrial plants, etc., need "X" Boiler Liquid Service NOW.

Old Boy "X" says:

Order a Carton from your Wholesaler today

FREE BLOTTERS and other sales helps—simply send printed section of your letterhead and say how many Blotters you can use.

"X" LABORATORIES, 25 West 45th Street
New York, N. Y., U. S. A.



"X" LIQUID

Repairs Leaks in Steam and Hot Water Heating Systems, High and Low Pressure Boilers

modern

MECHANICS » »

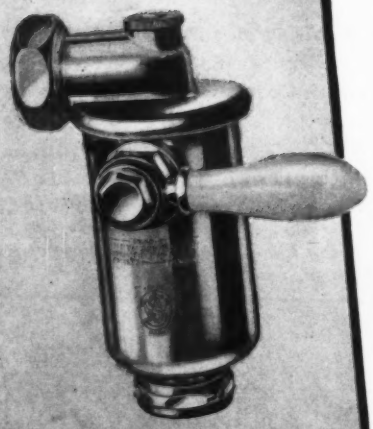
Modern efficiency demands simplicity. The mechanics of the Smith & Wesson Flush Valve is simplified to a maximum degree.

Every part, not absolutely necessary to working efficiency has been eliminated in the advanced design that has evolved after long experience and experimentation. Every useless and complicated adjustment has been completely overcome.

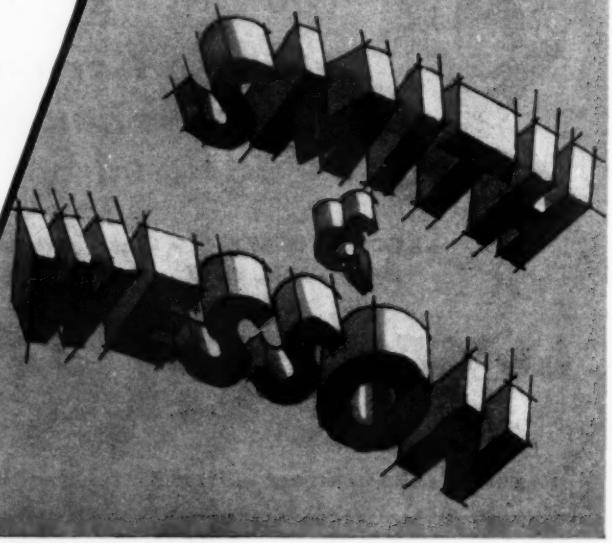
Nothing to Wear . . . . Nothing to Break . . . . Nothing to Stick . . . . . modern simplicity has completely triumphed in Smith & Wesson Flush Valves.

SMITH & WESSON
FLUSH VALVE DIVISION
Springfield » « Mass.

FLUSH



VALVES



Lummus, president and treasurer and Raymond R. Collins, vice president and secretary. The directors are: Walter E. Lummus, George L. Bourne, F. J. Faulks, Raymond R. Collins, F. A. Schaff, C. W. Middleton and A. G. Pratt.

◆

Tomlinson Co., Inc., Expanding

Tomlinson Co., Inc., Philadelphia, has just announced the addition of an industrial department in which it will handle a line of large pipe, valves and fittings to serve the industrial field. This industrial department has been added to all the Tomlinson branches.

◆

Evins F. Glore & Son Hold Sales Convention

Evins F. Glore & Son, Inc., Grand Central Terminal building, New York City, held a sales convention on January 5 at the Princeton Club in that city. Addresses by Arthur R. Glore, treasurer of the company, and P. H. Holton, vice president, in which business conditions were discussed were heard by seventeen members of the organization in attendance. Henry W. Reis, vice president and general manager of W. A. Russell & Co., New York City, also spoke before the meeting.

◆

Reading Iron Co. Looks For Better Business

Reading Iron Co., Reading, Pa., held its annual sales meeting January 14-16 at its offices in that city. The principal speaker, P. N. Guthrie, Jr., president, expressed the opinion that better times and a large volume of business are just ahead. With this conviction, Mr. Guthrie said, the plants of the company are preparing to step-up operations. F. W. Deppe, who was made general sales manager of the company on January 1, also spoke in an optimistic vein.

◆

Appoints Savannah, Ga., Representative

United States Blower and Heater Corp., Minneapolis, Minn., has appointed the Savannah Blow Pipe Co., Savannah, Ga., as its representative in Savannah and adjacent territory.

◆

Is Now Delco Appliance Corp.

The North East Appliance Corp. and the Delco-Light Co., Rochester, N. Y., have consolidated their activities, which are now carried on under the name of the Delco Appliance Corp., according to an announcement by E. A. Halbleib, president and general manager of both of the former units, who is president of the corporation. The Delco Appliance Corp. is a subsidiary of the General Motors Corp.

◆

Philadelphia Chapter A. S. H. V. E. Elects Officers

At the annual meeting of the Philadelphia chapter of the American Society of Heating and Ventilating Engineers, the following officers were elected for the ensuing year: President, E. N. Sanbern; vice president, L. C. Davidson; secretary, W. P. Culbert; treasurer, M. F. Blankin. The board of governors consists of H. G. Black, J. H. Hucker and A. J. Nesbitt.

Organize Carrier Corp. and Elect Officers

The merger of the Carrier Engineering Corp., the Brunswick-Kroeschell Co. and the York Heating & Ventilating Corp., plans for which were recently announced, was effected as of January 1 through the organization of the Carrier Corp., a holding company.

The principal subsidiary organizations will be maintained as separate, but closely co-ordinating operative concerns under the Carrier Corp., with the policy tending toward the concentration of all air conditioning business in the Carrier Engineering Corp., refrigerating business in the Brunswick-Kroeschell organization, and

C. R. Lyle

M. S. Smith

unit heating, cooling and ventilating in the York unit. The domestic air conditioning business as before will be centered in the Carrier-Lyle Corp.

The first official meeting of the Carrier Corp. was held in New York on January 7 and the following officers elected: Willis H. Carrier, chairman of the board; J. I. Lyle, president and treasurer; Thornton Lewis, executive vice president; C. R. Lyle, M. S. Smith, E. T. Murphy, S. B. Carpender and H. P. Gant, vice presidents; C. J. Staples, secretary, and M. E. Snyder and A. H. Goelz, assistant treasurers.

The board of directors consists of W. H. Carrier, J. I. Lyle, Thornton Lewis, C. R. Lyle, M. S. Smith, E. T. Murphy, S. B. Carpender, H. P. Gant, A. H. Goelz, C. J. Staples, Clifford Henfphill, Howard Ingels and Nelson Slater.

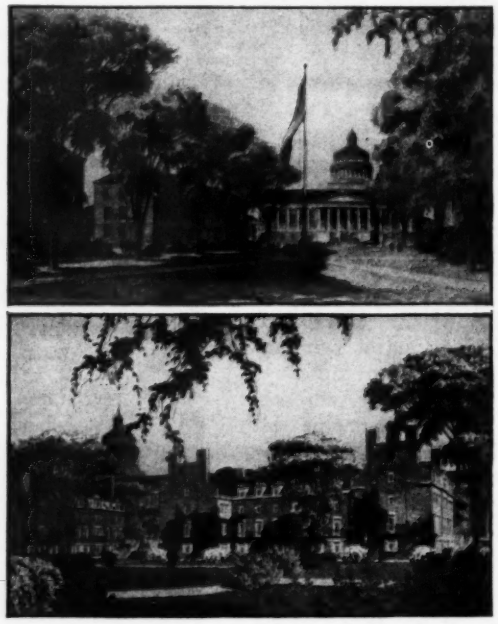
Under the new corporation organization, the executive officials of the principal subsidiaries are E. T. Murphy, president of the Carrier Engineering Corp.; C. R. Lyle, president of the Carrier-Lyle Corp.; H. P. Gant, president of the York Heating & Ventilating Corp., and S. B. Carpender, executive vice president of Brunswick-Kroeschell Co.

◆

New York Group Plans Annual Banquet

Plans are about completed for the yearly grand ball and banquet to be given on February 14 at the Hotel Commodore, New York City, by the New York Building Superintendents' Association. In addition to the banquet and dance a program of special entertainment has been arranged. The committee making the arrangements is as follows: G. B. Kehrt, chairman; Harold Foreman, vice chairman; J. D. McDonald, reservation secretary; J. E. Schroeder, record. secretary; J. A. Brady, treas.

MEETING ARCHITECTURAL STANDARDS OF QUALITY

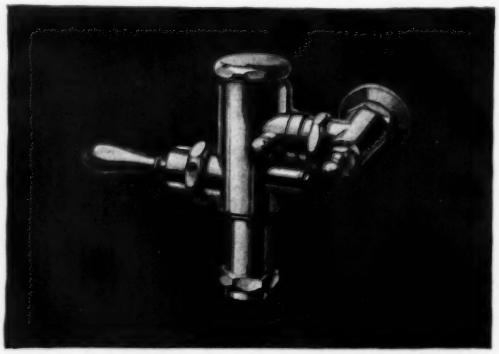


Main quadrangle and (below) dormitories of New College for Men, Oak Hill, Rochester, N. Y., showing buildings equipped with Solid Nickel Silver plumbing fixtures supplied by The John Douglas Company, Cincinnati, Ohio. Architects: Gordon & Kaelber, Rochester, N. Y.

UNIVERSITY OF ROCHESTER NEW COLLEGE FOR MEN

THESE MODERN BUILDINGS HAVE SOLID NICKEL SILVER PLUMBING FIXTURES BY DOUGLAS

The adoption of Solid Nickel Silver plumbing fixtures for the handsome new buildings of the University of Rochester suggests that every detail has been carefully specified so that this widely-watched building project may be in keeping with the highest architectural standards of today. Comparable in both beauty and physical properties to Pure Nickel and high alloys of Nickel, Solid Nickel Silver fixtures retain their lustrous, clean-looking appearance under severe use. They are corrosion-resisting and easily kept bright. Because of its hardness, toughness and strength, resembling tough bronze, Nickel Silver increases the wear-resistance of valve seats, and produces fixtures which are not easily marred or broken during installation or use. Solid Nickel Silver fixtures are being specified for both large and small installations where beauty, endurance and practical wearing qualities are of prime importance.

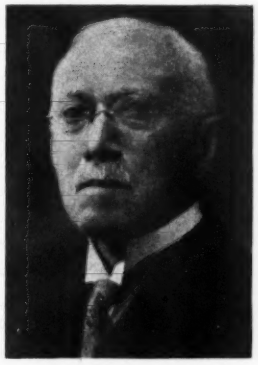


18% 22 Nickel SILVER

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

Death of Edward Joy

Edward Joy, president and treasurer of the Edward Joy Company of Syracuse, N. Y., one of the leading plumbing and heating contractors in the East, died at his home in that city on December 29, following an illness of six weeks. Mr. Joy was born in Waterford County, Ireland, March 3, 1846, and came to Syracuse, N. Y., in 1849, with his parents, and when a boy was apprenticed to the plumbing trade in the shop of Francis E. Carroll. He worked eight years at the trade and on March 1, 1875, he opened a business of his own on Market street in Syracuse. From this shop was built the business that later was to involve contracts in six figures with more than 100 persons on the payroll.



Edward Joy

Edward Joy became identified with banks and other community efforts. He made a hobby of helping young men in business and there are scores who can thank him for their start. He served his city eight years as member of the Intercepting Sewer Board. At the time of his death he was a member of the board of directors of the Syracuse Trust Co., a trustee of the Museum of Fine Arts and the Catholic Charities, he was also a member of the board of managers of St. Josephs Hospital, all in Syracuse.

He is survived by his nephew, Edward F. Joy, who is vice president, secretary and assistant treasurer of the Joy Company, and by three nieces.

◆

Death of David Stewart

David Stewart of Wilkes-Barre, Pa., for thirty-seven years associated with the J. L. Mott Co., Inc., Trenton, N. J., and its subsidiary, Mott Company of Penna., died recently following a short illness. Mr. Stewart had many friends in the plumbing trade and among architects in the territory he had served for so many years.

◆

Kohler Co. Honors Eleven 25-Year Veterans

Eleven men, each of whom during the year 1930 completed 25 years of continuous service with the Kohler company organization, were presented with gold watches at the close of 1930, in accordance with a custom instituted six years ago.

This award increased to 41 the honor roll of 25-year veterans, which includes Walter J. Kohler, president of the Kohler company, former governor of Wisconsin and in point of service the oldest member of the Kohler organization.

Former Governor Kohler, who received the award in 1924 along with 13 other members of the organization, began service with the Kohler company in 1890 as an enameler's apprentice. He has been president since 1905.

In addition to a watch, each of the veterans received a gold chain and, as a pocket piece, a gold replica of the Kohler village medallion, bearing in bold relief, the figure of a workman holding a ladle and the words, "He who toils here hath set his mark."

◆

Secretary Frank S. Hanley Issues Bulletin on Anti-Trust Laws

Frank S. Hanley of New York City, secretary of Eastern Supply Association, a short time ago issued a bulletin to all members of this organization, calling attention to President Hoover's recommendation concerning the Anti-Trust Laws in his message to congress, in which he recommended an inquiry into some aspects of the economic working of these laws.

The President's recommendation will be placed before the House Judiciary Committee at its first meeting, according to Chairman Graham of that committee, and he says that "the committee will probably order a study made through a sub-committee, which will most likely not be ready to report to the full committee until next December. I think the laws should be changed to remove restrictions that hamper trade and commerce."

◆

Will Hold First Annual Banquet

The Anthracite Club of New York City planned its first annual banquet for January 22 at the Hotel Astor, in that city. Senator James Davis of Pennsylvania will be the principal speaker, and John L. Lewis, president of the United Mine Workers of America, will be an honored guest. Addresses by the speakers will be broadcast. A band from the anthracite regions and a male quartet will be among the entertainment features.

◆

Western N. Y. Chapter Hears About Unit Heater Code

The December meeting of the Western New York Chapter of the American Society of Heating & Ventilating Engineers attracted about sixty-five who attended the dinner, and a number came in later for the meeting.

President Burke presided and designated a nominating committee, consisting of the board of governors, for officers for the new year. Fletcher Burke was elected delegate, and Joseph Davis, alternate, to represent the chapter on the nominating committee for the national organization.

The speaker of the evening was Donald French, president of the Industrial Unit Heater Association. Mr. French outlined the provisions of the code worked out in conjunction with the A. S. H. & V. E., for testing unit heaters.

◆

Mueller Co. Employes Receive Christmas Awards

Twenty-two thousand dollars were given at Christmas to various employes of the Mueller Co., Decatur, Ill., selected because of long terms of service, best suggestions on safety, or because of increased efficiency. Of the 234 employes receiving awards for periods of 5, 10, 15 and 20 years' service, 14 had been with the company more than 20 years. A special award of $1,000 in cash and 10 weeks' leave of absence with pay was made available for an employe who has been on time every day during his 35 years of service.

Business Personals

L. F. RAINS, vice president of Columbia Steel Corp. of California, a subsidiary of the United States Steel Corp., has been elected president of A. M. Byers Co., Pittsburgh, Pa. The appointment of Mr. Rains is effective February 1 and fills the vacancy created by the death of the late A. H. Beale on October 9, 1930.

CLARENCE M. WOOLLEY, chairman of the board of directors, American Radiator and Standard Sanitary Corp., New York City, has been made a member of the board of trustees of Columbia University, New York City. Mr. Woolley takes his seat on the board at its next meeting, which is to be held in February. Columbia University is one of the largest institutions of its kind in the country.

F. W. DEPPE, formerly district sales representative at St. Louis, Mo., for the Reading Iron Co., of Reading, Pa., has been appointed general manager of sales of the company. Mr. Deppe will make his headquarters at 230 Park avenue, New York City.

JAMES W. HOOK, president of the Geometric Tool Co., New Haven, Conn., has been appointed chairman of the State Committee on Unemployment by Governor Trumbull. This committee will formulate relief measures.

FRANK E. BRAH of Milwaukee, Wis., has been appointed to represent the Good Manufacturing Co. of New York City, in the Milwaukee and southern Wisconsin territory. He will make his headquarters at 4154 Lisbon avenue, Milwaukee. Mr. Brah is the son of Joseph Brah, prominent Milwaukee master plumber.

J. FRANK DORNEY, formerly supervisor of the rating and methods division of Walworth Co., Boston, Mass., has been appointed assistant to the works manager. Mr. Dorney has been with the company since 1923.

CHARLES A. WHITNEY, an engineer of wide experience, became a member of the technical staff of the American Oil Burner Association on January 1, according to an announcement by Harry F. Tapp, executive secretary. Mr. Whitney will spend most of his time in the field working with fire chiefs and municipal authorities in the drafting and modernization of oil burner ordinances. He is a graduate of the University of Kansas and well fitted for this work through his experience as a field engineer.

JAMES E. WEISS of the Hajoca Corp., Philadelphia, Pa., has been appointed manager of its branch houses at Bethlehem and Allentown, Pa. Mr. Weiss entered the plumbing and heating business twenty years ago, devoting the last ten years to selling.

H. W. DUSCHAK has been appointed eastern representative of the Acme Refining Co., of Cleveland, Ohio. He will make his headquarters at Buffalo, N. Y. GEORGE R. LEWIS has been appointed western representative, with headquarters at Chicago, and G. C. GORE has been appointed southern representative, with headquarters at New Orleans. F. W. ALLISON has been transferred to Michigan and western Ohio territory and will make his headquarters at Toledo.

CHESTER L. ERICKSON, Walworth Co., Boston, Mass., has been promoted to the position of superintendent of production. He was formerly assistant to the general superintendent.

J. C. SHUMATE, formerly manager of the Raleigh, N. C., branch of The Noland Co., Inc., Newport News, Va., has been named manager of the Atlanta, Ga., branch of the company, located at 270 Garnett street, S. W.

ALFRED W. DRAKE is representing L. O. Koven & Bro., Inc., Jersey City, N. J., in New York City. Mr. Drake for some years was a manufacturers' representative.

HERBERT M. ORSCHEL has just been appointed field sales manager for the Aeroil Burner Company, Inc., with factory at West New York, N. J., and branch offices at Chicago and San Francisco. Mr. Orschel has been connected with this industry for many years.

FRANCIS P. MCGINTY, formerly New England representative of Standard Sanitary Manufacturing Co., has joined Peck Bros. & Co., New Haven. He will represent the latter company in the New England territory.

ALFRED R. JACKSON has been appointed representative in Atlanta, Ga., for the United States Blower and Heater Corp. of Minneapolis, Minn. Mr. Jackson will make his headquarters at 510-11 Forsyth building, Atlanta. Associated with him are J. R. WALRAVEN and C. E. MARSH.

W. G. SMITH has joined the sales staff of John W. Dutcher, Leonia, N. J., manufacturers' representative. Mr. Smith will cover the Northern New Jersey territory.

H. E. HEYDER, Chicago district sales manager of the Conemaugh Iron Works, Latrobe, Pa., will spend three months or so abroad. After returning, Mr. Heyder will resume his duties with the Conemaugh company.

PERCY A. QUIMBY has become a member of the sales force of Smith & Abbott Co., at 68 Union street, Portland, Me. Mr. Quimby for the past 15 years was connected with the late firm of C. M. & H. T. Plummer and is well known in the plumbing trade.

O. C. BROOKS has recently joined the selling force of Hajoca Corporation and will cover the territory of its Reading, Pa., branch. Mr. Brooks has been connected with the industry for 30 years.

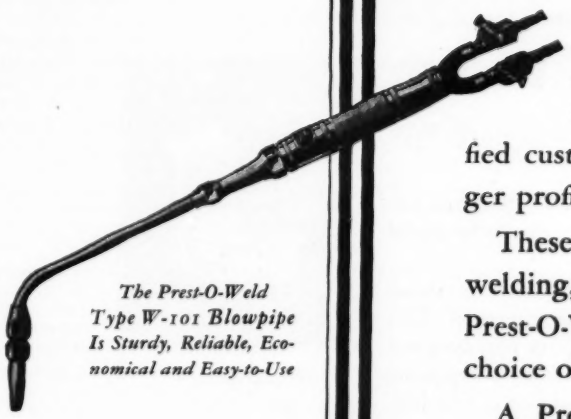
◆

Will Head Better Homes Committee

Miss Marie C. Kohler, sister of Walter J. Kohler, president of Kohler Co., Kohler, Wis., has been appointed to head the Wisconsin State Better Homes Committee, it has been announced from the national office of Better Homes in America, Washington, D. C. Miss Kohler's selection for this important post was made as a result of her successful leadership of the local Better Homes campaign in Kohler during the last seven years, where the quality of campaign which she directed brought repeated honors to that village.

EQUIP FOR OXWELDING with PREST-O-WELD

WELDING AND CUTTING APPARATUS



The Prest-O-Weld Type W-101 Blowpipe Is Sturdy, Reliable, Economical and Easy-to-Use

PLUMBING and heating contractors equipped to make oxwelded installations build good-will through better satisfied customers and, at the same time, make bigger profits on every job.

These contractors find that whatever their welding, cutting, and heating requirements are, Prest-O-Weld gives complete satisfaction. It is the choice of this progressive industry.

A Prest-O-Weld welding and cutting outfit often pays for itself in a few days' use through increased economy of time, material, and labor.

Sold by Jobbers Everywhere

26 District Offices

Atlanta	Detroit	New Orleans
Baltimore	El Paso	New York
Birmingham	Houston	Philadelphia
Boston	Kansas City	Pittsburgh
Buffalo	Los Angeles	St. Louis
Chicago	Memphis	Salt Lake City
Cincinnati	Milwaukee	San Francisco
Cleveland	Minneapolis	Seattle
Denver		Tulsa

THE LINDE AIR PRODUCTS COMPANY

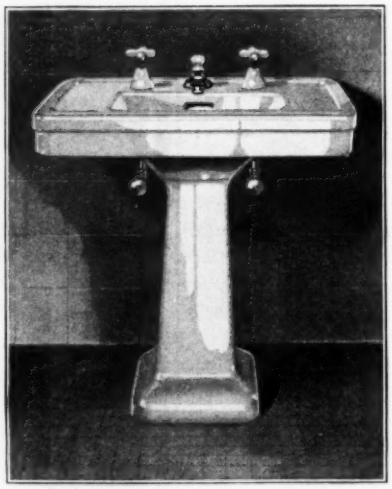
Unit of Union Carbide and Carbon Corporation

126 Producing Plants UCC 627 Warehouse Stores

IN CANADA, DOMINION OXYGEN COMPANY, LTD., TORONTO

Demonstrate the *Securo* waste to your customers

Among many reasons why a Crane fixture like the *Norwich* lavatory pleases your customers is the *Securo* quick draining direct lift waste. Any Crane lavatory can be fitted with it. And this one Crane plumbing improvement alone has nine splendid selling points:



The NORWICH twice-fired vitreous china lavatory, C-255-MI, equipped with the SECURO direct-lift quick draining waste

1 ***Strainer Plug.*** Catches all foreign matter at the outlet of the basin, keeping the trap clean.

2 ***Direct Lift.*** The natural way to operate a waste. A pull on the china knob opens it; a push closes it.

3 ***Construction.*** Simple; only one moving part. No stuffing box, ball joints, or toggles to leak or get out of order.

4 ***Large Outlet.*** Extra large unobstructed passage.

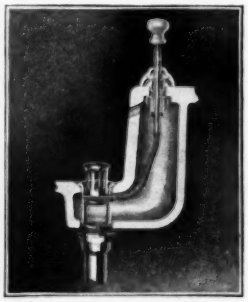
5 ***Quick Drain.*** Drains basin in 6 seconds, the rush of water cleansing basin each time.

6 ***Cleaning.*** Strainer plug easily removed for cleaning.

7 ***Positive Action.*** Strainer plug positively closed by handle, assuring water-tight joints.

8 ***Security.*** Ball catch on operating stem positively holds outlet strainer in open position.

9 ***Appearance.*** Operation through overflow exposes less metal parts to be kept clean and permits trap to be placed higher, adding to appearance of lavatory.



Sectional view of the SECURO waste

It is tireless attention to smallest details that gives Crane materials their ready saleability and unsurpassed reputation. This care running through every feature in the Crane plumbing and heating materials, helps sell your customers in the beginning and builds good-will for you after your installation is complete.

Valves CRANE *Fittings*

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO

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Branches and Sales Offices in One Hundred and Ninety-six Cities

Progress in Planning the National Hydraulic Laboratory for the Study of Plumbing

Advice from George K. Burgess, director of the Bureau of Standards at Washington, D. C., states that since July of last year several tentative plans for the hydraulic laboratory have been prepared and studied in detail. Also, it is expected that one of these plans will be adopted within the next few weeks and that construction will be started at the earliest possible date.

The new laboratory will make fundamental investigations in connection with all types of water flow phenomena. There is now being conducted at the Bureau of Standards an investigation of flow in plumbing stacks and drains which is financed in part by the plumbing industry. Many millions of dollars are spent yearly in the United States for plumbing, but as yet comparatively only a small amount of scientific work has been done in establishing the design of plumbing systems, particularly for large buildings, on a solid basis.

The investigation is hampered by lack of equipment which a national hydraulic laboratory would supply.

Dates of Coming Conventions

January 26, 27, 28 and 29, 1931—A. S. H. V. E.—The annual meeting of the American Society of Heating and Ventilating Engineers, to be held at the William Penn Hotel, Pittsburgh.

January 30, 1931—N. P. S. A.—The first merchandising conference of the National Pipe and Supplies Association, at the Deshler Hotel, Columbus, Ohio.

February 2 and 3, 1931—WEST VIRGINIA—The annual convention of the Master Plumbers Association of West Virginia, to be held at Parkersburg, with headquarters at the Chancelor hotel.

February 3, 4 and 5, 1931—OHIO—Thirty-ninth annual convention of the Ohio State Association of Master Plumbers, to be held at Canton, Ohio.

March 9, 10 and 11, 1931—INDIANA—The annual convention of the Indiana Society of Sanitary Engineers, to be held at Indianapolis.

March 10 and 11, 1931—MAINE—The annual convention of the Maine State Master Plumbers' Association, to be held at Lewiston, Me.

March 11 and 12, 1931—E. S. A.—The spring meeting of the Eastern Supply Association, to be held at the Hotel Astor, New York.

March 16 and 17, 1931—KANSAS—The annual convention of the Kansas Master Plumbers' Association, to be held in Iola, with headquarters at the Kelly hotel.

March 17 and 18, 1931—NORTH DAKOTA—The annual convention of the North Dakota State Association of Master Plumbers to be held at Grand Forks.

March 25 and 26, 1931—C. S. A.—The One Hundred and Sixth Regular meeting of the Central Supply Association, to be held in Chicago, at the Palmer House.

April 6 and 7, 1931—OKLAHOMA—The annual convention of the Oklahoma State Association of Master Plumbers, to be held at Oklahoma City, with headquarters at the Huckins hotel.

April 13 to 18, 1931—A. O. B. A.—The eighth annual convention and oil burner show of The American Oil Burner Association, to be held in Philadelphia, Pa., with convention headquarters at the Benjamin Franklin hotel. The oil burner show will be held on the exhibit floor of the Gimbel building.

April 13 and 14, 1931—ARKANSAS—The annual convention of the Arkansas State Master Plumbers' Association to be held at Camden, Ark., with headquarters at the Ouachita Hotel.

April 21, 22 and 23, 1931—TEXAS—The annual convention of The Associated Master Plumbers of Texas, to be held at Houston at the Rice hotel.

May 4 and 5, 1931—FLORIDA—The annual convention of the Florida State Association of Master Plumbers and Heating Dealers, Inc., to be held at West Palm Beach.

May 6, 7, 8 and 9, 1931—H. & P. C. N. A.—The annual convention of the Heating and Piping Contractors National Association, to be held at Louisville, Ky., with headquarters at the Kentucky hotel.

May 11 and 12, 1931—TENNESSEE—The annual convention of the Associated Master Plumbers of Tennessee, to be held at Nashville.

May 11, 12 and 13, 1931—N. P. S. A.—The convention of the National Pipe & Supplies Association to be held at Cleveland, Ohio, with headquarters at the Hotel Hollenden.

May 12 and 13, 1931—CONNECTICUT—The annual convention of the Connecticut state association.

May 18, 19, 20, 21 and 22, 1931—CALIFORNIA—The annual convention of the State Association of Master Plumbers to be held at San Diego, Calif., with headquarters at the U. S. Grant Hotel.

May 26 and 27, 1931—NEW JERSEY—The annual convention of the New Jersey Association of Master Plumbers, to be held at Trenton, with headquarters at the Hotel Hildebrecht.

June 23, 24 and 25, 1931—N. A. M. P.—The forty-ninth annual convention of the National Association of Master Plumbers, to be held at the Auditorium, Milwaukee, Wis., with headquarters at the Hotel Schroeder.

June 23 and 25, 1931—N. A. M. P. AUXILIARY—The annual convention of the Women's Auxiliary to the National Association of Master Plumbers, to be held in the Hotel Schroeder, Milwaukee, Wis.

COMING TRADE EVENTS

January 24, 1931—Meeting of the National Association of Plumbing and Heating Salesmen at the Sylvania hotel, Philadelphia, Pa., called by President W. W. Morgan.

January 31, 1931—The annual dinner-dance and installation of officers of the Master Plumbers' Association of North Hudson, N. J., to be held at the Hermitage hotel, Union City, N. J.

February 2, 1931—The annual ladies' night of the Master Plumbers Association of Philadelphia at McCallister's Auditorium, Philadelphia.

February 5, 1931—The annual dinner-dance of the Master Plumbers' Association of Jersey City, N. J., to be held at the Masonic club, in that city.

February 7, 1931—The annual beefsteak dinner and dance of the Master Plumbers' Association of the Bronx, New York City, to be held at Ebling's Casino, in that borough.

February 7, 1931—The annual dinner-dance of the New York University and Ventilating Engineers Society, to be held at the Park Central hotel, New York City.

February 9 to 20, 1931—A short course in plumbing for master plumbers, plumbing instructors and plumbing inspectors, to be held in Madison, Wis., under the auspices of the Wisconsin Master Plumbers' Association.

February 10 to 14, 1931—The fifth Midwestern Engineering and Power Exposition, to be held at the Coliseum, Chicago.

February 11, 1931—The annual banquet and ladies night of the Master Plumbers' Association of Montclair and Bloomfield, N. J., to be held at Aiello Hall, Montclair.

February 14, 1931—The annual banquet and grand ball of the New York Building Superintendents' Association, to be held at the Hotel Commodore, New York City.

February 14, 1931—The annual dinner-dance of the North and West Side Master Plumbers' Pleasure Club of Chicago, to be held at the Germania Club.

February 17 and 18, 1931—The fifth annual conference for the Massachusetts State Association of Master Plumbers and the Massachusetts Sanitary Club, to be held at the Massachusetts Institute of Technology, Cambridge, Mass.

June 22, 23, 24 and 25, 1931—Exposition of plumbing, heating and allied products, in connection with the forty-ninth annual convention of the National Association of Master Plumbers, in the arena of the Auditorium, Milwaukee, Wis.

Are you still packing valves?

Are you still making costly return trips to repack leaking radiator valves? That kind of valve has outlived its usefulness on modern radiator jobs. And progressive architects, engineers and heating contractors are standardizing on Packless Valves that cannot leak.

ARCO PACKLESS VALVES

For Hot Water Installations the No. 901 shown above costs only about $5 extra for a typical 10 radiator job and it brings these outstanding advantages:

1. Packless—complete protection against leaks without repacking.
2. Swinging plate—acts as a cleaning tool, impossible for the valve to stick.
3. Equalizing—adjustable stop, makes it possible to balance the job after installation without expensive pipe changes.

STANDARDIZE ON No. 901 ARCO PACKLESS—One of a complete Packless line for Steam, Water, Vapor or Vacuum, made in Angle, Corner and Gate patterns.

●

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ARCO ACCESSORIES MAKE ANY HEATING PLANT BETTER

The Possibilities of Plumbing Research

(Continued from Page 66)

financial studies looking toward the arrangement for time payments for plumbing may greatly increase the amount of construction carried out. Research in publicity methods, the preparation of slides, movies, lectures and demonstrations which would be available for the education of the public as to the possibilities of modern plumbing, especially as to its bearing upon the health, safety or convenience of the community, would not only bring in new business but would increase the plumber's self-respect and make for him a higher place in the esteem and confidence of the community.

The opening up of new and perhaps entirely unexpected developments in plumbing undoubtedly would ensue from the more extensive use of research carried on in an unbiased and scientific manner under the direction of technical experts

The writer has endeavored to appeal to the imagination of the plumbing trade by suggesting a few possible lines of research with the advantages that may accrue from carrying them out, but it is believed that these are of lesser importance to the trade, even though they might bring about expansions and improvements in methods and procedure, than another result which would undoubtedly ensue from the more extensive use of research. This result would be the opening up of new and perhaps entirely unexpected developments, and it is in this quarter that one may see the advantage which arises from carrying on research in an unbiased and scientific manner, under the direction of technical experts who are not themselves plumbers and who can therefore view the problems under consideration from points of view quite different from that of the plumbing trade. It is here that the greatest possibilities of advancing the horizon of the industry exist, for the expert is able to focus upon his problem his knowledge of the progress that has been made in other industries involving similar principles, and may bring about many useful and even unforeseen developments in the industry. The plumbing trade, as is true also of any other trade, has become accustomed to its many limitations and so is inclined to take for granted that such limitations must always exist. The expert, on the other hand, is not bound by the superstitions and the rule-of-thumb practices which grow up in, and hamper the development, of every trade, and the benefits that may accrue to the industry through the utilization of his broader and untrammelled vision, only the future can reveal.

It is hoped that the above brief treatment of the subject of research in plumbing will increase the interest in that particular phase of the industry, and it is believed that more time at the local and national conventions could be profitably given to discussions by experts on various aspects of the problem of research possibilities. Only in this way can the industry keep in the forefront of the increasingly rapid march of progress, and get its legitimate share of the unmortgaged dollars of the community.

M.I.F. Copper Tube Fittings have solved the problem of shock and strain.

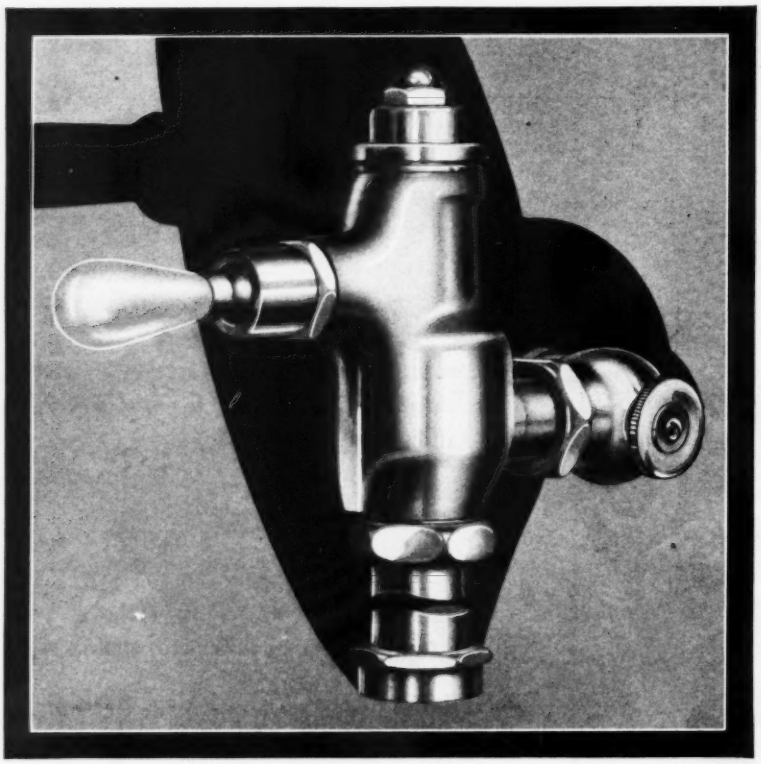
Two point contact, TWO 45 deg. Seats eliminate the possibility of tubing working loose or pulling out and they do more—they keep the joint absolutely TIGHT.

Have you ever used M.I.F. Copper Tube Fittings? If you have you already know how easy they are to make-up. No time wasted cutting off the tubing *perfectly* square. No wasted or ruined tubing due to excessive flanging. With M.I.F. Fittings it's all done in a jiffy and when it's once finished it is done RIGHT.

Try M.I.F. Copper Tube Fittings on your next job.

M.I.F. COPPER TUBE FITTINGS

MALLEABLE IRON FITTINGS M|F COMPANY, BRANFORD, CONN.



ALL QUIET

on the Water Front

TO THE plumber's trained ear, the sound that a flush valve makes in operation is a sure prophecy of the future. "Chatter . . . hammer . . . *thud!*" means trouble ahead. Silent, positive action is a promise of long and satisfactory service.

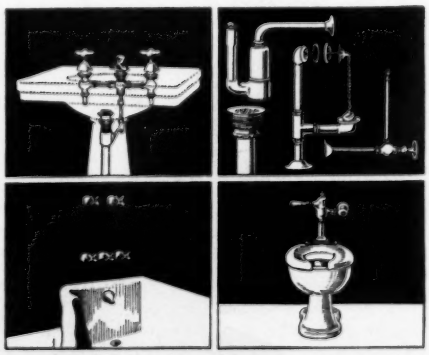
Try the action of a Scovill Flush Valve. The whole operation is as gentle and quiet as the careful opening and closing of a faucet. Never a chatter. No suggestion of hammer. Not a sound but the smooth flow of water.

The explanation lies in Scovill design. Scovill Flush Valves open *with* flow and pressure of water, close *against*. Irregularities of action are eliminated where they should be — on the designer's blue-prints.

Write for details of Scovill design, and other features of Scovill Flush Valves—self-cleaning by-pass, outside adjustment, positive action under any reasonable pressure. Styles and sizes for all requirements. Catalog on request.

SCOVILL MANUFACTURING COMPANY
PLUMBERS' BRASS GOODS DIVISION • WATERVILLE, CONNECTICUT

A COMPLETE LINE . . . .



Scovill Flush Valves . . . Shower and Bath Fixtures . . . Tubular and Miscellaneous Plumbers' Brass Goods for General Plumbing Requirements.

Scovill

THE TRADE
News of Plumbing and Heating Contractors

N. A. M. P. Directors Favor Permanent Office

The board of directors of the National Association of Master Plumbers at a special meeting in Chicago on January 6 voted to submit to the annual convention at Milwaukee, Wisc., next June a resolution approving the establishment of a permanent office in Washington, D. C. Since its organization, this association has moved its headquarters from year to year to the home city of the newly elected president. The movement to change this plan and establish headquarters in one city has been before the association for a number of years.

At the annual meeting of the Wisconsin state association, National President George H. Drake gave the first outline of the reasons which led the officers and directors to favor the permanent headquarters and the selection of Washington. His remarks on this question are published on page 114.

◆

North Dakota Selects Convention Dates

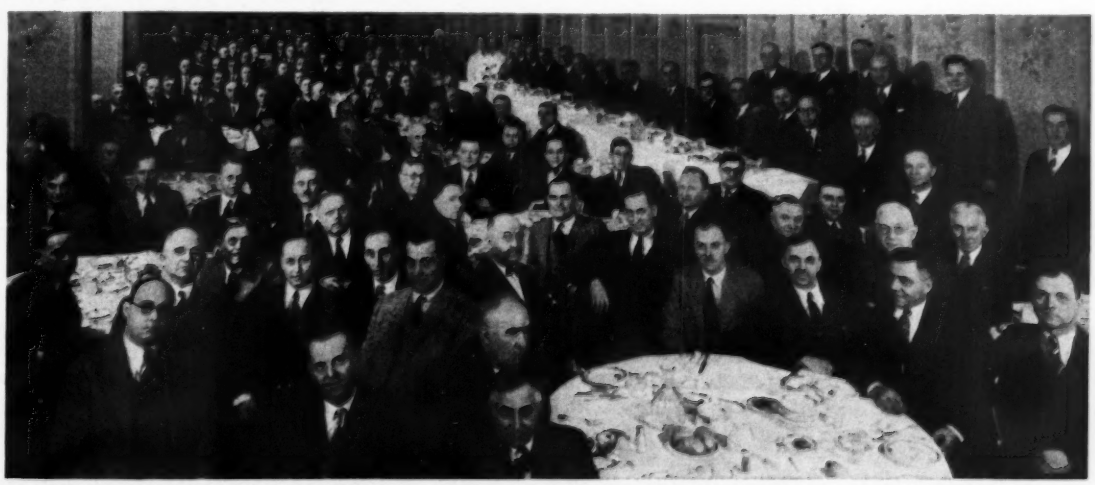
The North Dakota State Association of Master Plumbers will hold its annual convention at Grand Forks on March 17 and 18, 1931. The members of the convention committee are: Rasmus Lunseth, John L. Hulteng, R. S. Spriggs, Paul Leiberg, Olaf Christianson, O. F. Hulteng, Oscar Lunseth, Roy J. Spriggs and P. A. Braseth.

Efforts are being made to make this an exceptionally well attended convention.

Chicago Association Elects J. W. Fettes, President

The Plumbing Contractors' Association of Chicago held its annual meeting on the evening of January 7 in the Rose room of the Morrison hotel, at which time the following officers were elected for the ensuing year: James W. Fettes, president; Henry Swade, vice president, and Henry P. Reger, treasurer. Rupert J. Weber, Michael Mele, Thomas F. Hanley, Jr., Charles J. Stanley, Robert E. Murphy, J. I. Riordan, William J. Sievert and George J. Feldkamp were elected directors.

Rupert J. Weber, who has served as president of the Chicago association during the past year, reviewed business conditions in the industry during 1930 and told of the work which the association had done during the twelve months in an endeavor to better conditions in the trade. He said that conditions were somewhat unprecedented as not only were new building operations decidedly off, but also comparatively little remodeling or repair work was done. He stressed the importance of the plumbers' license law. In this connection Mr. Weber said that much good could be had from the enforcement of the present laws and ordinances, and he urged each member to co-operate with the association to this end. In appreciation of his able services, Mr. Weber was presented with a handsome diamond ring, the presentation being made by Joseph W. Cannon, past president of the National Association of Master Plumbers and a for-



Plumbing contractors of Chicago at installation of new officers

mer president of the Chicago plumbers' association.

The annual report of Peter M. Munn, secretary, and Robert E. Murphy, retiring treasurer, showed the association to be in good financial condition. The reports of the chairman of the various standing committees were read following dinner and showed that definite progress had been made during the year.

Among the distinguished guests present were: George H. Drake of Buffalo, N. Y., president of the National Association of Master Plumbers; P. W. Donoghue of Boston, Mass.; vice president of the National association; George W. Frank of Buffalo, secretary of the National organization; Melvin McKay of Rock Island, president of the Illinois Master Plumbers Association, and C. A. Bolton of Chicago Heights, secretary of the state organization; John T. McGrath of Libertyville, president of the Lake County association; Lewis R. Friend of Milwaukee, president of the Wisconsin Master Plumbers Association; Walter Dusold, president, and Peter King, secretary, Milwaukee association; Jacob Schuh and F. C. Kuetemeyer of Milwaukee; F. J. Timmermann, president, and E. J. Blake, secretary, St. Louis association; Fred Fleishauer, secretary of Buffalo association, and August Ebke, also of Buffalo; R. G. Thomas of San Antonio, Tex.

◆

New Jersey Masters Will Convene May 26 and 27

The New Jersey State Association of Master Plumbers has decided to hold its yearly convention on May 26 and 27 at Hildebrecht Hotel, Trenton, N. J. These dates were named so that this meeting would not conflict with that of the Connecticut State organization which is to hold its convention May 12 and 13, the days on which the New Jersey Association has met for many years.

◆

Will Hold Banquet at Montclair, N. J.

The Master Plumbers' Association of Montclair-Bloomfield, N. J., has named February 11 as the date of its annual banquet and ladies' night. The affair is to be held at Aiello Hall, Montclair.

◆

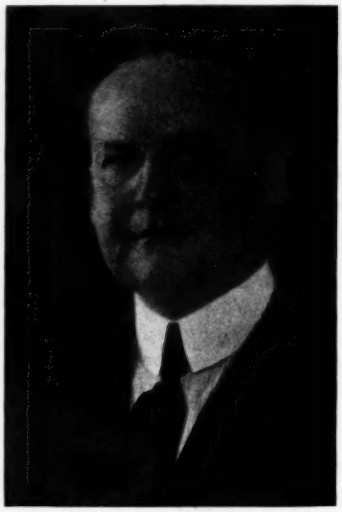
Montreal Oil Heating Association Elects Officers

The following officers were elected at the recent annual meeting of the Montreal Oil Heating Association: Alderman Schubert, president; O. A. Fogarty, vice-president; Joseph Elie, E. A. Robinson, M. Lemieux and C. L. Robertson, directors.

"It is noteworthy," declared the secretary in his annual report, "that during the past few months our association has shown a pronounced tendency towards becoming a distinct Canadian organization. At present, a committee is conferring with the Federal authorities for the purpose of utilizing the government laboratories as testing quarters for Canadian oil burners. The committee is insisting also that the approval of these authorities be given the same status as that of the laboratories of the United States of America. This action is of great significance, since it is the first definite step taken towards absolute independence in the field of production and distribution of Canadian made oil heating apparatus."

Past National President D. F. Durkin Dies

D. F. Durkin, Jr., of Philadelphia, Pa., died January 15 after a protracted illness. Mr. Durkin, one of the prominent master plumbers of the country, was president of the National Association of Master Plumbers



D. F. Durkin, Jr.

in 1920. He was also a former president of the Pennsylvania State Association and of his local organization. Solemn Holy Requiem Mass was held at St. Francis De Sales Church, Philadelphia, on January 20.

◆

M. I. T. Conference Will Be Held Feb. 17 and 18

The fourth annual conference for the Massachusetts State Association of Master Plumbers and the Massachusetts Sanitary Club will be held at Massachusetts Institute of Technology, Cambridge, Mass., February 17 and 18. The conference will be held under the auspices of the department of civil and sanitary engineering, and the complete program will be announced at a later date.

◆

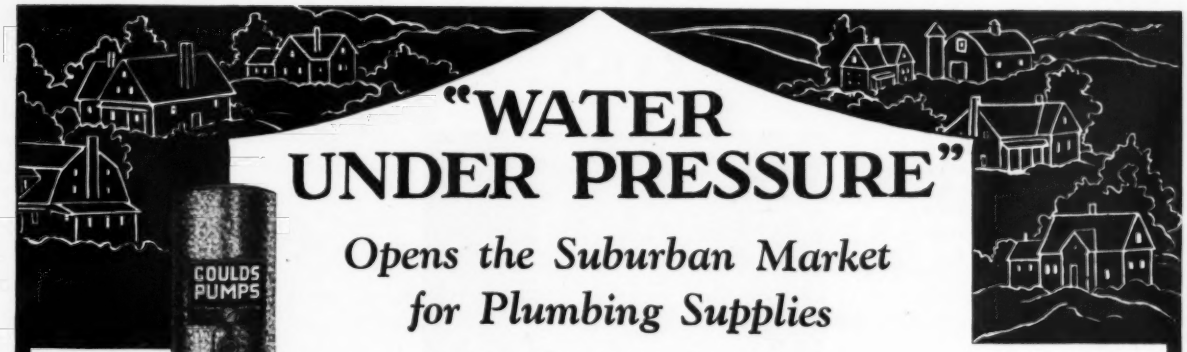
Purdue Research Foundation Is Incorporated

Purdue University, Lafayette, Ind., has announced the incorporation of the Purdue Research Foundation. This foundation will assist in developing the increasing amount of research work which this university has been doing, some of which has involved problems in plumbing and heating engineering.

◆

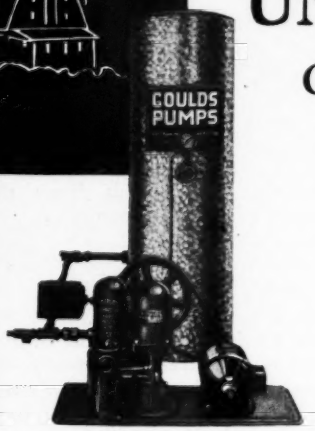
Existing Standards to Prevail for Year

It has been announced by I. J. Fairchild, Division of Trade Standards, Bureau of Standards, Department of Commerce, Washington, D. C., that the existing standard under "Standard Weight Malleable Iron of Steel Screwed Unions" will stand for another year, beginning November 1, without change. This letter, addressed to manufacturers, distributors and users of these types of unions, was accompanied by a review of accomplishments.



"WATER UNDER PRESSURE"

Opens the Suburban Market for Plumbing Supplies



W-48 Ever-Oiled System. Complete with ¼-H. P. motor and 42-gal. tank. Capacity, 210 gal. per hr.

SUBURBAN and rural home owners are demanding the convenience and protection of modern plumbing. Point out to them the reliability and economy of a Goulds water system, and you open up this market to your own profit.

The Goulds line is complete—systems for every service, whether deep or shallow well, pressure or open tank. Write to-day for full information.

The *EVER-OILED* Line for Shallow Wells

12 sizes and styles
Pumps permanently lubricated and guaranteed for two years.
Automatic starting and stopping
Pump equipped with ball bearings
For open-tank or pressure systems

Write for Catalogue 17

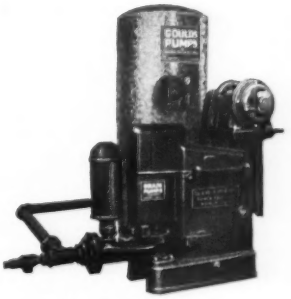
The Automatic-Oiling Deep-Well Line

50 different outfits
V-belt, silent chain, or flat-belt drive
4-in., 6-in., or 8-in. stroke
Single- or double-acting cylinders

All bearings bathed in continuous flood of oil by Gear Mesh Lubricator. (Patent Pending). Tightly enclosed crank case holds six months' supply of oil.

Shock and wear minimized by air chamber which acts as shock absorber. Smooth, even flow of water obtained by differential plunger.

Write for Catalogue 18



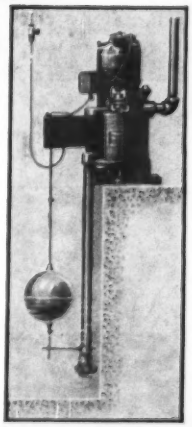
No. 7828 VAT Automatic-Oiling Deep-Well Pumping Unit for pressure tank service. ½-H. P. motor.

The Minute Man Cellar Drainer Keeps Cellars Dry

This is Cellar Drainer Time!

Are you getting your share of the season's cellar drainer business? Push the "1776 Minute Man" Cellar Drainer and participate in the profit-making.

The Minute Man is fully automatic. Shaft is packed in grease and fully enclosed. Self-priming centrifugal pump with bronze impeller and stainless-steel shaft. Attractively finished in bronze and black.



Complete outfit includes ¼-H.P. motor; 8-ft. lamp cord; circuit breaker; foot valve; 3-ft. suction pipe; float switch. Capacity, 5 to 25 g. p. m.

GOULDS PUMPS, INC.
Seneca Falls, N. Y.

GOULDS PUMPS

RALPH STARR BUTLER

Vice President in charge of Advertising

General Foods Corporation

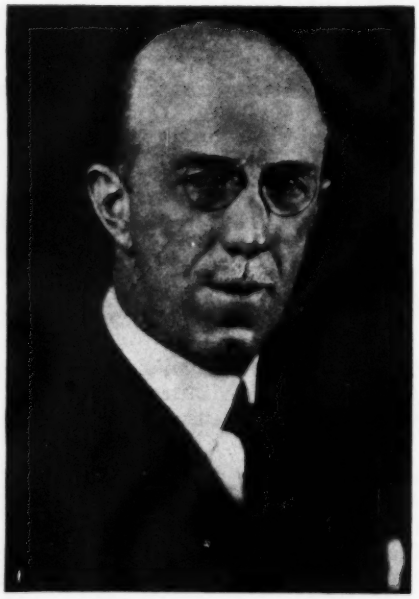
"I cannot believe that the present enormous budgets would have been voted by responsible business men without such a measuring stick as the A. B. C. provides. Its foundation marks the turning point in advertising."

Ralph Starr Butler

PHIL L. THOMSON

Director of Public Relations

Western Electric Company



"Business would never have spent millions to buy circulation by the pile. Accustomed to purchase copper, lumber or lead by an accepted unit of measure, we asked the same type of yardstick for space. The A. B. C. gave it to us."

P. L. Thomson.

Advertisers, men who direct the budgets of great companies . . .

Men who spend money for space in order to promote more profitable business . . .

Looking back over the active decades, they search out the turning point in American Advertising, the period when the confidence of business was won.

Independently, they agree on time and place.

It was the discovery of the Yardstick . . . The finding of a unit of measure for the value of advertising space. A unit as positive, as reliable, as the measure for coal or wheat.

Sixteen years ago a group of advertisers met with publishers and agencies in Chicago. To bring order out of chaos in circulation claims, they founded, on May 20, 1914, the Audit Bureau of Circulations.

In 1914, publication advertising totalled about $250,000,000. In 1927, year of the latest government report, it had reached over a billion dollars.

That this growth could not have come without the A. B. C. is the judgment of advertisers themselves.

Founded at the instance of advertisers, having advertisers in the majority on its Board of Directors, the A. B. C. exists to safeguard the interests of advertisers.

For them, it forms the bulwark against the chaos that once was advertising. It has enabled them to buy advertising with confidence.

In recognition of this service, an increasing number of leading advertisers hold membership today in the Audit Bureau of Circulations.

An Advertisement by

AUDIT BUREAU OF CIRCULATIONS

Executive Offices . . . Chicago

Cleveland Heating and Piping Contractors Elect Officers

The annual meeting and election of officers of the Heating and Piping Contractors' Cleveland Association was held recently. The following officers were elected for the ensuing year: President, R. J. Mayer; vice president, E. D. Maurer; secretary, Adolph Weiss; treasurer, Walter H. Rhotan. Directors: Earl L. Heinle, W. B. Van Sickle, W. Ross Brewer, George W. Spohn and A. C. Banko.

B. Y. Kinzey, manager of the association, made a detailed report for the past year, stressing the results of the advertising and merchandising campaign and the necessity of continued aggressive selling for greater sales and greater profit during 1931.

Following the business meeting a banquet was held at the Cleveland Chamber of Commerce, attended by more than a hundred members of the trade and twenty-six architects and engineers, who were the guests of the association.

The "eye and ear" entertainment, which livened the banquet, was followed by the introduction of but one speaker, Joseph C. Fitts, secretary of the Heating and Piping Contractors' National Association.

Mr. Fitts outlined the development of the standardization work of the National association and the many values of that work to home owners, architects, engineers, builders, manufacturers and the contractor in setting up definite standards for proper heating; thus adding to the comfort of the owner, the quality of the installation done by the contractor, which relieves the architect, builder and manufacturer of complaints and dissatisfaction.

President Mayer has already started planning for many activities during the coming year, including the promotion of trade practice rules for the industry, and will appoint a committee to consider the violation of fair practices in the Cleveland territory.

◆

Lake County Association Elects Officers

The Lake County Sanitary and Heating Engineers' Association recently elected J. T. McGrath of Libertyville, Ill., to serve as president during the ensuing year. The other officers elected were Arnold Peterson of Ravinia, vice president, and Edward Strenger of Highland Park, treasurer. The board of directors will consist of the above officers and H. T. Strenger of Lake Forest and J. H. Moran of Highland Park, the retiring president. Lester V. Anderson will continue in office as secretary-manager.

The new officers and directors were formally installed at a meeting in the association offices. C. A. Bolton of Chicago Heights, secretary of the Illinois Master Plumbers' Association, acted as installing officer. Mr. Moran was presented with a wrist watch in recognition of his services as president for the past two years.

The Lake County association has commenced a short-course in salesmanship and trade development. N. S. Finney of the Plumbing and Heating Industries Bureau is in charge of the course. A five-day week is now effective in Lake County on all new work, and, beginning April 1, this will also apply to jobbing and repair work.

ADJUSTING NUT TURNS EASILY..
in open housing
In every size from 6 in. to 60 in. this adjusting nut fairly spins under your hand.
Easy to get at, quick adjustment to pipe size—but it stays accurately where you set it.
RIDGID

NO sticking or binding anywhere in the working of the RIDGID Pipe Wrench—smooth, free and easy. Full-floating hook jaw glides in and out at a spin of the easy running adjusting nut in wide open housing.

That's only one of many RIDGID features: the guaranteed unbreakable housing, pipe scale on hook jaw, replaceable heel jaw, no slipping or locking on the pipe, husky I-beam handle with hang-up hole.

Try a RIDGID the next time you're at your Jobber's. You'll be surprised.

The Ridge Tool Company
Dept. DE
Elyria Ohio

There are RIDGID Pipe Wrenches Cutters, Vises & Threaders

RIDGID PIPE TOOLS

Easily Equal to the Toughest Job

HIGH pressure or low pressure, factory, home, school or office building, a Sherwood Ball Cock in the closet tanks, means that even the toughest job is "licked."

No whistling or gurgling and NO LEAKING—these are the points that have distinguished the Sherwood and put it up before the old, uncertain ball cocks of other, less scientific days.

Furnished with any size shank for any standard job. Through your jobber with the least delay.

SHERWOOD BRASS WORKS
Jefferson and Mt. Elliott Aves.
DETROIT, MICH.

REPRESENTATIVES

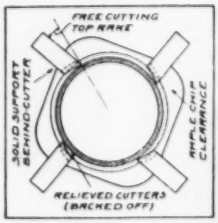
SHERWOOD Ball Cocks

ARMSTRONG BROS.

The pipe dies are made by metal-cutting specialists.

It could be expected that ARMSTRONG BROS. Pipe Dies would be of new and greatly improved design for pipe threading is metal cutting and the Armstrong Bros. Tool Co. has specialized in metal-cutting tools for over 39 years. In fact, Armstrong methods have changed shop practice the world over—ARMSTRONG Tool Holders are used in over 96% of the machine shops and tool rooms.

It was from a vast store of specialized knowledge that the designers drew to develop ARMSTRONG BROS. Pipe Dies. They knew that only a "backed-off" cutter at the proper "rake" could be easy cutting, that only an alloy tool steel, properly treated and hardened, would stand up and give long service. They knew that these and many other improved features must be incorporated in ARMSTRONG BROS. Dies before they would be worthy of the Arm-and-Hammer Trade Mark. That is why these dies cut easier, and last longer.



Write for Cat. P-10 which shows a full line of improved pipe tools.

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Ave.
CHICAGO, U. S. A.

Jersey City Masters Will Hold Annual Dance

The Master Plumbers' Association of Jersey City, N. J., will hold its annual dinner-dance on February 5 at the Masonic club, in that city. L. S. Komoski is chairman of the committee making the preparations and is being assisted by Past State President J. J. Corcoran, George Cooper, J. J. Conlin, W. F. Mulholland, J. J. McCarthy, A. A. Marzullo, President E. P. Ingram and Secretary J. T. Brennan.

California State Masters Appoint New Secretary

John M. La Dieu has been selected for the position of executive secretary of the California State Merchant Plumbers Association. Prior to assuming his new position, Mr. La Dieu was secretary-manager of the Executive's Association of San Francisco, and previous to that time he was associated with the Beckman-Hillister Company, business engineers of the Golden Gate City.

Mr. La Dieu fills the position left vacant by the sudden death of Charles R. Hutton of Los Angeles, who was for many years officially connected with the California state association.

◆

Rock Island Association Elects Officers

Henry F. Lamp, of Rock Island, Ill., was re-elected president of the Rock Island Master Plumbers' Association for 1931, at the association's dinner meeting held at the Fort Armstrong hotel, Rock Island, on December 18. This is Mr. Lamp's third term as president.

Other officers were re-elected as follows: vice president, R. C. Lamp, and treasurer, F. T. Dufva.

The newly elected officers and members of the association re-named Kirk A. Journy as executive secretary for the year. This is Mr. Journy's fifth year serving the Rock Island Association as executive secretary. J. W. Ward and M. L. McKay, president of the Illinois state association, were elected to serve on the association's executive council.

Delegates elected to the state convention of the Illinois Master Plumbers' Association, held at Danville, January 20, 21 and 22, 1931 were: H. F. Lamp and C. C. Rosenfield. Alternate delegates: P. H. Kale and W. E. Thompson.

◆

The contract for the installation of plumbing and vacuum apparatus for the 14-story building being erected by the Meier & Frank Co., Portland, Ore., has been awarded to the Plumbing and Heating Sales Corp., of Portland. The heating and ventilating contract went to the Kendall Heating Co., also of Portland.

THE "LOCK-ON, SLIP-OFF" DISC HOLDER

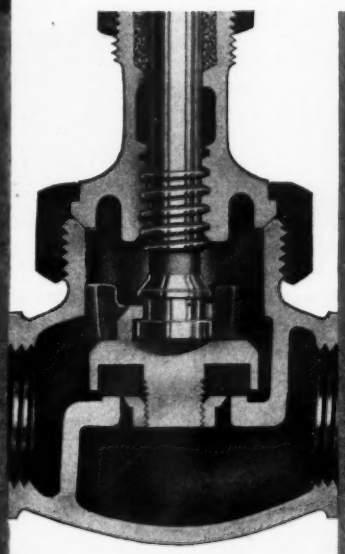
The Re-New-Disc valve, with its "lock-on, slip-off" disc holder, as made by Walworth, was developed nine years ago. The disc holder may be "locked-on," when the valve is taken apart. This prevents the holder from dropping, by accident, into machinery or open vats, and facilitates renewing the disc.

Before loosening the union ring to remove the bonnet, be sure that the valve is wide open. When the valve is open and the bonnet removed, the upward extension of the wing guides prevents the disc holder from slipping off the stem, because the guides extend upward beyond the central portion of the bonnet. One turn of the hand wheel allows the disc holder to slip off the stem and a spare holder with a new disc may be slipped on and locked in position while the bonnet is being replaced in the valve.

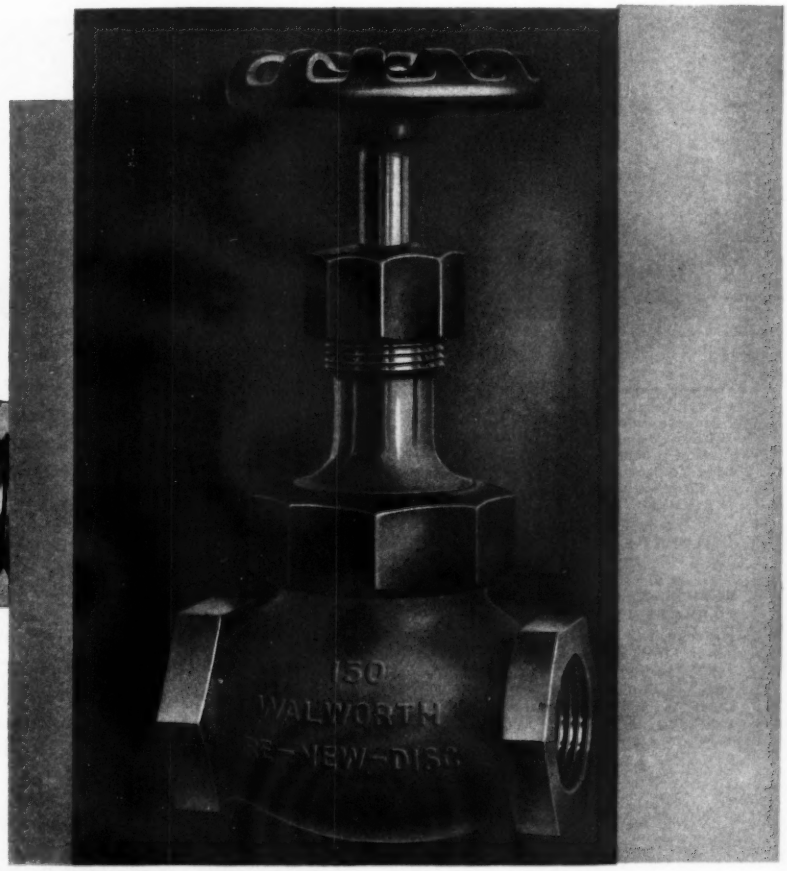
The importance of this Walworth feature of valve construction has been proved by the remarkable popularity of this valve.

Walworth valves of merit provide safe, economical and precise control of steam, water, oil, air and gas lines under all conditions of service. The Walworth Re-New-Disc for 150 lbs. steam service is one of the leaders of our line of quality bronze valves.

A WALWORTH DEVELOPMENT



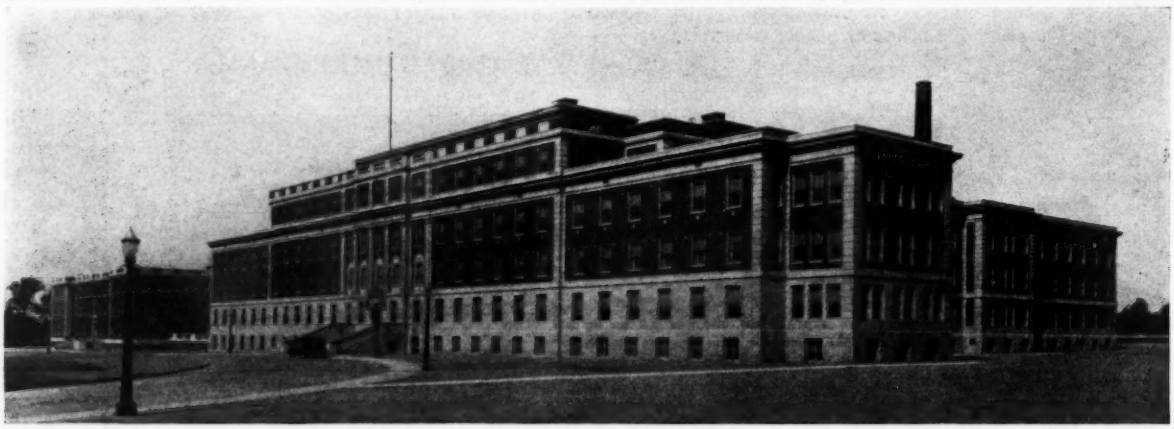
Sectioned View
Showing Construction of
Disc Holder Re-New-Disc Valve
Fig. 95



WALWORTH

Walworth Company, General Sales Offices: 60 East 42nd St., New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa.; and Attalla, Ala.
Walworth Company Limited, 660 St. Catherine Street West, Montreal, P. Q.
Walworth International Co., 11 Broadway, New York, Foreign Representative
... Distributors in Principal Cities of the World ...

Easily Installed for PERMANENCE



North side unit of Youngstown Hospital, piped with Youngstown steel pipe in both plumbing and heating systems . . . and using Youngstown Buckeye Conduit in the electrical installation.

Architect—
ALBERT KAHN—Detroit

General Contractor—**JOS. BUCHHEIT SONS CO., —Youngstown, Ohio**

Plumbing & Heating Contractor—**J. W. SCHOLL CO.—Youngstown, O.**

Electrical Contractor—
GEO. A. WEBSTER ELECTRIC COMPANY —Youngstown, Ohio

IN THOUSANDS OF BUILDINGS from coast to coast Youngstown steel pipe has been specified by leading architects for its permanence and installed by leading plumbing and heating contractors for both its performance and ease of installation.

Piping contractors know from long experience that Youngstown pipe is easy to install on any job. Whether used in plumbing, heating, sprinkler or refrigeration systems, its uniformity and ease of cutting and threading save both time and money in the installation.

Youngstown pipe is manufactured from the finest grade of steel, to the highest quality standards, by specialists in steel fabrication. Every length is carefully inspected to insure absolute uniformity, and pressure tested as a safeguard against any possible hidden defects. It is a pipe that is worthy of use in the finest buildings . . . and it is stocked by leading jobbers everywhere.

THE YOUNGSTOWN SHEET AND TUBE CO.

One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"

General Offices: YOUNGSTOWN, OHIO

ATLANTA · · · Healey Building
BOSTON · · · · · · · Chamber of Commerce Building
BUFFALO · Liberty Bank Building
CHICAGO · · · Conway Building
CINCINNATI · Union Trust Bldg.
CLEVELAND · Term'l Tower Bldg.
DALLAS · · · Magnolia Building
DENVER · Continental Oil Bldg.
DETROIT · · · · Fisher Building

DISTRICT SALES OFFICES:
KANSAS CITY, MO. · Commerce Building
LOS ANGELES · 3000 Santa Fe Ave.
MEMPHIS · · · · 42 Keel Avenue
MINNEAPOLIS · · Andrus Bldg.
NEW ORLEANS · Hibernia Bldg.
NEW YORK · · 30 Church Street Hudson Terminal Building
PHILADELPHIA · Franklin Trust Building
PITTSBURGH · Oliver Building
SAN FRANCISCO · · · 35 New Montgomery Street
SEATTLE · · · · Central Building
ST. LOUIS · · · Louderman Bldg.
YOUNGSTOWN · · Stambaugh Building

LONDON REPRESENTATIVE
The Youngstown Steel Products Company, Dashwood House, Old Broad Street, London, E. C. Eng.

YOUNGSTOWN
GALVANIZED SHEETS PROTECT • SAVE WITH STEEL

Oregon Building Congress Considers Expansion

The Oregon Building Congress, an organization sponsoring apprenticeship and vocational training activities among the building trades in Portland, Ore., has found its work so well received that plans are being considered for extending its scope to include all the principal cities outside the state metropolis. F. H. Murphy, president, states that more co-operation could be achieved in this way, and O. V. Adams, state superintendent of vocational education, thinks that support would be given such a movement from the start.

The Oregon Building Congress is about 10 years old, during which period it has been active in all enterprises and in all legislation that would further training in building and allied trades.

◆

Sets Date for Annual Beefsteak Dinner

The Master Plumbers' Association of the Bronx, New York City, will hold its annual beefsteak dinner and dance on February 7 at Ebling's Casino, that borough. Fred Schmalstich is chairman of the committee on arrangements, and S. George Arnone is secretary-treasurer. Alfred Beyrodt, C. W. Kirchhof, Anthony Platt and W. F. Ebner are assisting.

◆

North Hudson Association to Install Officers

The Master Plumbers' Association of North Hudson, N. J., has selected January 31 as the date for its annual installation of officers and dinner-dance at the Hermitage hotel, Hudson avenue and Thirty-first street, Union City, N. J. The committee caring for the arrangements is as follows: Daniel Thurnau, chairman; William T. J. Orriss, past state president; C. C. Cole; Henry Bunker, Jr.; Nicholas Triani, and President George Buess.

The Government's Construction Work

(Continued from Page 64)

with a grease trap of the interceptor type. Each of these traps or interceptors has a capacity of 20 lb. of grease.

It will be seen that prevention of stoppage of drains from the collection of grease is amply provided for. This is a wise provision, for in a large institution such as these hospitals, the production of grease is very great.

The floor drains and sinks in the bakery department are not discharged into the grease trap, but into the sanitary system, it being felt no doubt, that these wastes are not of a greasy nature.

The drinking fountain shown in the attendants' cafeteria and in the staff dining room, also connect into the sanitary drainage system.

Fixture Schedule

The Dining Hall Building plumbing fixture schedule contains the following:—

7 watercloset.
2 dental lavatories.
3 urinals.
8 lavatories.
3 showers.
3 slop sinks.
3 fire hose racks.
3 wall hydrants.
7 drinking fountains.
1 36x96-in. hot water heating tank.

(To be Continued)

PRIZEWINNERS OF DOLE VALVE CONTEST

Judges for this third in the series of six coloring contests, conducted by The Dole Valve Company, 1923 Carroll Ave., Chicago, were—*Editor of Domestic Engineering; Representative of the Plumbers Trade Journal;* Two artists—*Mr. Ellsworth Young* and *Mr. Edw. T. Grigware.*

One more coloring contest will appear in the pages of this magazine, February 7, 1931, and hundreds of cash prizes will be awarded.
Also an extra cash prize of $100 for the best series of six submitted in accordance with the rules.

The contest is open to anyone, anywhere.

FIRST PRIZE, $50.00
Chestine Kendall
Box 169
Jacksonville, Ill.

SECOND PRIZE, $25.00
Dorothy M. Sharrock
377 Union St.
Jersey City, N. J.

THIRD PRIZE, $15.00
June Fosler
4152 Brookside Rd.
Toledo, Ohio

FOURTH PRIZE, $10.00
Mary Spofforth
1654 James St.
St. Paul, Minn.

CONSOLATION PRIZE AWARDS, $1.00 EACH
Barbara Arnold
28 Taft Street
Edgewood, R. I.
Mabel L. Bierfeldt
237 Ferry St.
Everett, Mass.
Ranice W. Birch
462 E. 37th St. N.
Portland, Ore.
Robert D. Bosworth
Ft. Collins, Colo.
Shirley Burns
119 Newton St.
Hartford, Conn.
Lillian M. Chase
Wenham, Mass.
Joy Chevalier
3315 E. Tenth St.
Long Beach, Calif.
Catherine C. Day
7 Dillingham St.
Dorchester, Mass.
George Desmarais
204 Taylor St.
Manchester, N. H.
Walter C. Drechsler
P. O. Box 374
Sausalito, Calif.
Helen L. Earaley
1022 First Avenue
Altoona, Pa.
Grace W. Fitch
84 Western Ave.
Brattleboro, Vt.
Wallace Fleming
246 S. 19th Ave.
Maywood, Ill.
Rita Florent
10 Felton St.
New Bedford, Mass.
Mary Gardner
4023 Moffitt Ave.
St. Louis, Mo.
Blanche Griesinger
311 E. 14th St.
Long Beach, Calif.
Ruth Hempel
8120 Durand St.
Detroit, Mich.
Pauline R. Hill
184 Whitman St.
New Bedford, Mass.
Annabel Hodges
139 Dalzell St.
Shreveport, La.
R. Jaworsky
2161 Glebe Ave.
New York, N. Y.
Helen F. Jones
205 S. Main St.
Pinckneyville, Ill.
H. Carroll Keen
4528 S. Rocheblave St.
New Orleans, La.
Ruth Kendall
234 E. Michigan Ave.
Jacksonville, Ill.
Ruth H. Ketchum
237 Quincy St.
Long Beach, Calif.
J. Herbert Kissinger
621 Market St.
Lykens, Pa.
Pauline Klein
Box 416
Devernon, Ill.
Mary Kling
226 Waller Ave.
Lexington, Ky.
George Kramer
2419 Marion Ave.
New York City, N. Y.
Ruth E. Lake
1301 E. Genesee St.
Syracuse, N. Y.
Margarette Liebstadter
3646 Charlotte St.
Kansas City, Mo.
Grace McChesney
Cardiff-By-The-Sea, Calif.
Shirley Manning
Cherry Street
Wenham, Mass.
Lillian I. Mitchell
115 First St.
Rockford, Ill.
Marie F. Mulgrew
20 River St.
Arlington, Mass.
H. Lucille Nelson
315 Dodd Rd.,
St. Paul, Minn.
James Parlett
22 N. Haverford Ave.
Margate, N. J.
James Pearl
13th and 68th Avenue
Philadelphia, Pa.
Madeline Pickett
118-06 203rd St.
St. Albans, L. I.
P. Repetti
405 East 100 St.
New York City
Geneva Rigsby
1625 Cleveland St.
Augusta, Ga.
Leta G. Sanborn
Cherokee, Iowa
Henry K. Schiff
12 Leslie St.
Newark, N. J.
Elmer Schwenck
821 Hillgrove Ave.
LaGrange, Ill.
Mildred Schwenck
821 Hillgrove Ave.
LaGrange, Ill.
Bob Tibbetts, Jr.
503 High St.
Union City, Ind.
Helen Tita
57 South St.
Danbury, Conn.
Mrs. A. J. Vollmer
1599 22nd St.
Milwaukee, Wis.
George Weber
3729 N. 9th St.
Philadelphia, Pa.
Weston Wendling
1845 So. 25
Lincoln, Nebr.
Ralph Wolf
207 East 85 Street
New York City

New Officers Now Lead Many Associations

St. Louis

The Contracting Plumbers' Association of St. Louis, Mo., has elected F. J. Timmermann as its president for the ensuing year. Bernard Braun was elected vice president, and August A. Meyer, secretary. Charles Burgess was elected to the office of treasurer. E. J. Blake is general secretary of the association.

Fairfield County, Conn.

The Fairfield County Master Plumbers' Association, Inc., with headquarters in Springdale, Conn., recently elected the following officers for the 1930-31 term: Oscar S. Noyd of Norton Heights, president; Fred Rutz of Stamford, vice president; Fred W. Goetz of Springdale, recording secretary; Stephen Miller of Norwalk, financial secretary; Harry Nathan of Norwalk, treasurer.

Paterson, N. J.

The Paterson (N. J.) Master Plumbers' Association has elected the following officers to serve during the coming year: Andrew J. White, president; Joseph T. Korver, vice president; William Borduin, secretary; Robert McBride, treasurer; Jacob J. Sikkema, financial secretary; Frank A. McBride, trustee; and Morris Kessler, sergeant-at-arms.

Louisville

The Louisville Master Plumbers' Association, Louisville, Ky., has elected Albert F. Hirsch as its president for the 1930-31 term. Carl C. Spies will serve as vice president, and O. H. Mitzlaff was re-elected secretary-treasurer.

Albany

The Albany Master Plumbers' Association, Albany, N. Y., recently elected the following officers for the 1930-31 term: Andrew Ryan, president; Clarence Keeshan, vice president; J. Matt deRouville, secretary; and Joseph Nicklas, treasurer.

St. Joseph

The Association of Master Plumbers of St. Joseph, Mo., met recently and elected the following officers to serve during the 1930-31 term: Roy M. Jackson, president; F. W. Brand, vice president; H. J. Enright, secretary; G. D. Shaffer, treasurer.

Richmond

The Master Plumbers & Heating Association of Richmond, Va., has elected the following officers to serve during the forthcoming year: H. B. Johnson, president; W. G. Winter, vice president, and J. Stuart Graham, secretary-treasurer. T. A. Talley is sergeant-at-arms. E. G. Harris, H. A. Carter and H. G. Longworth are trustees.

Cincinnati

The Cincinnati Master Plumbers' Association, Cincinnati, Ohio, has elected John Doherty as president for the coming year. The other officers of the association are George C. Ammon, vice president; William C. Tillett, secretary; and Edward Frank, treasurer.

Passaic, N. J.

The Passaic Master Plumbers' Association, Passaic, N. J., has elected the following officers to serve during the forthcoming year: Allan J. Blair, president; Harry Vogel, vice president; I. Choler, secretary; and S. J. Dinino, treasurer. S. L. Levenson is executive secretary of the association.

Beverly, Mass.

The Beverly Master Plumbers' Association, Beverly, Mass., has elected John P. Murphy as president for the ensuing year. H. Guy Lyman was elected vice president, and R. Robertson, Jr., secretary-treasurer.

Phoenix, Ariz.

The Master Plumbers Association of Phoenix, Ariz., has elected L. W. Greer as president for the ensuing year. W. A. Thomson and D. S. Horrall were made vice presidents. F. W. Hotchkiss is secretary and W. W. Hertz is treasurer.

Long Beach, Cal.

The Long Beach Merchant Plumbers Association of Long Beach, Calif., recently elected the following officers for the 1930-31 term: Fred J. Burch, president; James Bailey, vice president; Peter W. Coffey, secretary, and Henry Robinett, treasurer.

Rockford

The Rockford Master Plumbers Association, Rockford, Ill., has elected Elmer O. Bergren as its president for the 1930-31 term. Victor Merchant will serve as vice president, Joseph W. Nilson as secretary, and Albin Broquist as treasurer.

Montclair and Vicinity, N. J.

The Master Plumbers' Association of Montclair, Bloomfield, Verona and Vicinity (N. J.) met recently and elected the following officers to serve during the ensuing year: Henry J. Williamson, president; Paul Zeim, vice president; Charles J. Samuel, secretary; and Jeramiah Blodget, treasurer.

West Hudson, N. J.

The West Hudson Association of Master Plumbers, with headquarters at Kearny, N. J., met recently and elected Edward Gland of North Arlington as president for the 1930-31 term. John Kinnear, of Kearny, was

READY FOR SHIPMENT
THOUSANDS OF TONS OF FITTINGS

ABOUT two years ago this company inaugurated a new plan for handling shipments—a plan which keeps the spotlight of executive control trained on every order received, regardless of how small or how large it may be.

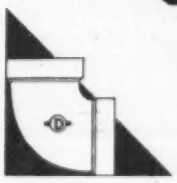
Each order is followed through with mathematical precision until it is properly filled and shipped. Successive checks make imperative its constant movement from storage warehouse through the shipping department.

This positive system of control backed up by a complete stock of every standard size of fitting needed, insures all orders except those for special castings being shipped quickly. That means needed fittings arrive where they are wanted promptly. The wholesaler can make his deliveries as requested and the contractor can proceed with his work without interruption.

Prompt delivery is only one of the many services rendered by the

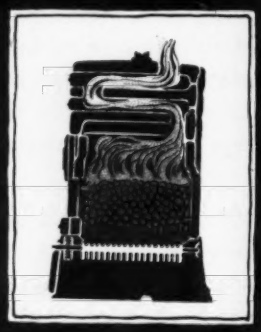
DETROIT BRASS AND MALLEABLE WORKS
Detroit Michigan

Manufacturers of a full line of Brass Valves, Cocks, etc., for steam, water, gas and oil.
Distributed only through wholesalers.

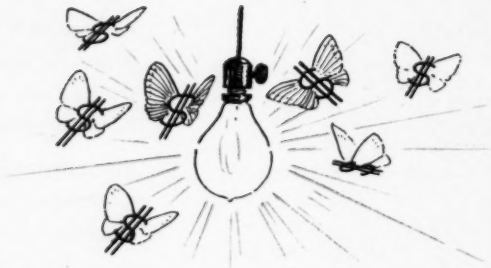


DETROIT FITTINGS

Burnham Boilers



The Burnham's long fire travel makes its short coal bill. And we can prove it. Want the proofs?



Like Bugs To A Light Bulb Do Burnham's Fuel Savings Attract Sales

Yes, you are right. Every boiler maker claims his boiler is the easiest to sell. So far as Burnhams are concerned we claim nothing. However, you know that a saving on fuel, in this common sense year 1931, is going to have more than ever to do in influencing boiler buyers. The Burnham's long fire travel makes its short coal bill. That's why Burnhams will attract 1931 sales like an electric street light attracts bugs.

We are backing up our dealers as never before. Take advantage of these advantages. Catalogs free. All you need of them.

Burnham Boiler Corporation

IRVINGTON, NEW YORK

Representatives in all principal cities of the United States and Canada

elected vice president; A. O. Bornemann, Kearny, secretary (27th term) and Joseph Roujon, also of Kearny, treasurer.

Philadelphia Suburban

The Philadelphia Suburban Master Plumbers' Association (Pa.) has elected David S. Sanderson, of Drexel Hill, president to serve during 1931. A. L. Simons, Upper Darby, was elected vice president; William T. McCreary, Philadelphia, secretary, and Ross P. Baldwin, Drexel Hill, as treasurer. John F. Sanderson, of Drexel Hill, is executive secretary.

Waterbury, Conn.

The Waterbury Master Plumbers' Association, Waterbury, Conn., has elected John M. Gill as president for the ensuing year; Christian Braun, vice president; A. H. Blanchard, secretary, and M. J. Hyland, treasurer.

Racine, Wis.

The Master Plumbers' Association of Racine, Wis., recently elected the following officers to serve during 1930-31: Henry J. Smith, president; Sigmund Solheim, vice president; W. R. Pugh, secretary, and John Feiner, treasurer.

Southern California

The Federation of Merchant Plumbers of Southern California has elected Louis E. Remy, Long Beach, to serve as president during the ensuing year. Other officers elected are Clyde Hickman, Long Beach, vice president, and Walter E. Wilmot, Venice, secretary-treasurer.

Lima, Ohio

The Lima Master Plumbers Association, at Lima, Ohio, recently held its annual meeting and elected the following officers to serve during the 1930-31 term: C. C. Cowles, president; O. B. Johns, vice president, and T. G. Ewing, secretary-treasurer.

Peoria, Ill.

The Master Plumbers' Association of Peoria, Ill., has elected Albert M. Schlehuber as president for the coming year; Lee H. Rose, vice president; Fred B. Siefert, secretary; Theodore Kasjens, treasurer. Robert D. Ticknor is manager of the Peoria association.

Hoopeston, Ills.

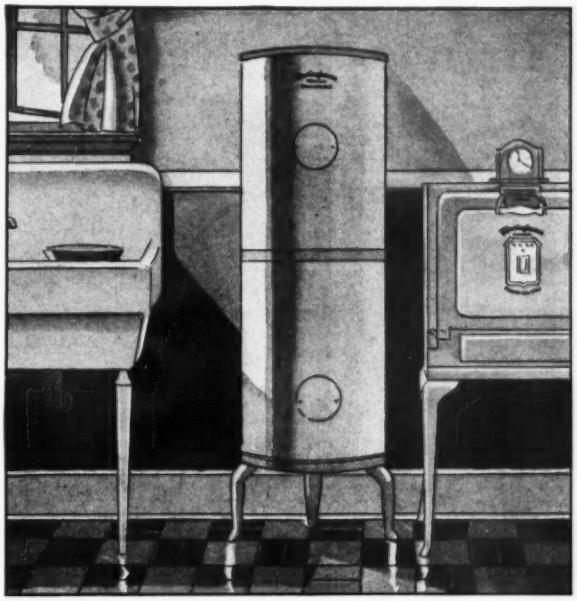
The Hoopeston Master Plumbers' Association, Hoopeston, Ill., has elected Clarence W. Murray as president for the 1930-31 term. M. C. Leigh has been elected vice president, and M. L. Fickle, secretary-treasurer.

Galesburg, Ills.

The Master Plumbers' Association of Galesburg, Ill., has elected Glenn Anderson to serve as president during the ensuing year. Other officers elected are Eugene Bauer, vice president; G. R. Englin, secretary; A. H. Telford, treasurer.

Manitoba

The Manitoba Association of Sanitary & Heating Engineers, at Winnipeg, Manitoba, Canada, has



ELECTRICITY
opens up a new market for you
. . . ask your power company

When your electric power company grants a preferential rate for electric water heating, it is opening up a big new field of profitable business in which you can share. For the convenience and safety of Westinghouse Electric Water Heaters mean increased sales of water heating equipment . . . sales far in excess of the normal replacements of obsolete heaters.

Profits on the sale of electric water heaters . . . profits on installations . . . are waiting for you when you work with your power company in its efforts to introduce and increase the use of electricity for water heating. Ask the commercial manager of your local power company about his water heating plans or return the coupon, for information, to the Domestic Appliance Department, Westinghouse Electric & Manufacturing Company, Mansfield, Ohio.

Domestic Appliance Department, D. E. 1-24-31
Westinghouse Electric & Manufacturing Co.,
Mansfield, Ohio.

I am interested in learning more about the opportunity for profits in the sale of Westinghouse Electric Water Heaters.

Name .....

Address .....

City .....

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ELECTRIC WATER HEATERS

Brings Big Returns

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The GLOBE Sizzler

THE NO-POCKET, ONE-PIECE FURNACE COIL

YES SIR, your furnace coil replacement business can be put on a real money-making basis! But if you don't believe it, it's because you have never handled the Globe Sizzler. This patented one-piece heating coil costs no more than "made-up" coils, yet customers willingly pay more for it.

The Globe Sizzler contains no pockets to clog or lime up. It provides free, noiseless circulation of water, always in an upward and horizontal direction. Stocked by all leading plumbing and heating jobbers. Write us or ask your wholesaler for details about the Globe Sizzler.

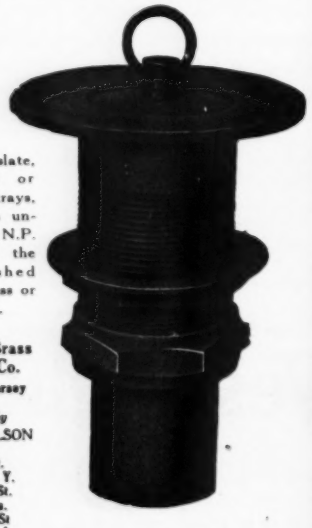
GLOBE MACHINERY & SUPPLY COMPANY
227 W. Court Ave Des Moines, Iowa

The Globe Sizzler is made in different lengths to fit all makes of furnaces. It comes to you ready for installation, each coil packed in an individual carton.

TRENTON BRASS PRODUCTS

T B B T

FOR EVERY USE



For soapstone, slate, earthenware or porcelain wash trays, Trenton Brass unfinished brass or N.P. plugs are just the thing. Furnished with either brass or rubber stoppers.

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T B T B T B T B T B T B

elected Charles E. Randall president; C. H. Josie, vice president; Robert Rettie, secretary, and A. T. Kernaghan, treasurer for the coming year.

Easton, Pa.

The Easton Master Plumbers' Association, Easton, Pa., has elected the following officers to serve during the coming year: P. A. Breuning, president; Harry R. Transue, vice president; Charles H. Weaver, secretary, and John J. Seigfried, treasurer.

Canton, Ohio

The Canton Master Plumbers' Association, Canton, Ohio, has elected E. C. Brumbaugh as president for the coming year. The other officers of the association are Gust Schwitzgable, vice president, and C. Carpenter, secretary-treasurer.

Summit, N. J.

The Master Plumbers' Association, Inc., of Summit and Vicinity, N. J., recently elected the following officers to serve during the coming year: A. H. Riviere of Summit, president; Charles Van Wert of Chatham, vice president, and James Hogg of Summit, secretary-treasurer.

Omaha, Neb.

The Master Plumbers' Association of Omaha, Nebr., has elected Wray M. Scott as president for the 1930-31 term. The other officers are Grant G. Rydberg, vice president; E. H. Brown, secretary, and Leo Baroch, treasurer.

Gary, Ind.

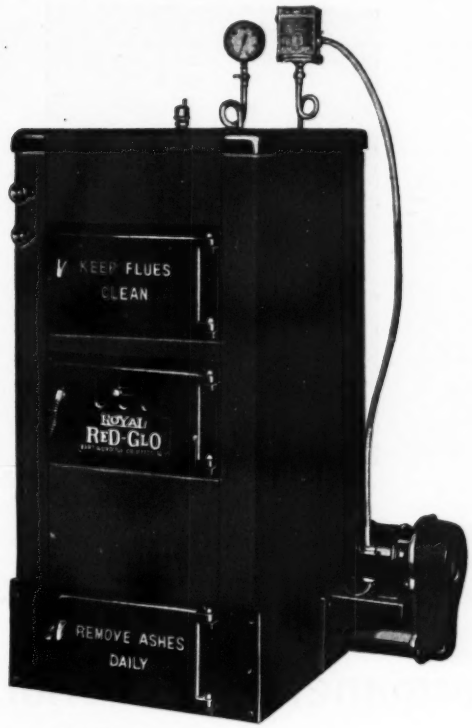
The Gary Society of Sanitary Engineers, Gary, Ind., has elected officers for the ensuing year, as follows: George M. Goode, president; John B. Rochford, vice president, and Ernest L. Liles, secretary-treasurer.

Champaign-Urbana, Ill.

The Plumbing and Heating Merchants' Association of Champaign-Urbana, Ill., recently elected the following officers to serve during 1930-31: John V. Brannigan, president; W. T. Holmes, vice president; Louise Rickard, secretary.

Philadelphia

Maney J. Feeney was re-elected to the office of president of the Master Plumbers' Association of Philadelphia. Mr. Feeney has been at the head of this large association for a number of years. The election took place at the monthly meeting of the association on January 2. Other officers elected for the ensuing year are: Vice Presidents, William Boal, Harry L. Stilwell, George M. Hicks, Walter Raid and Robert G. Weir; secretary, Robert H. Pflug-Felder; treasurer, George Moeller; board of directors, George F. Uber, Harold Asquith, William H. Beahm, James Soehle, Howard Neilson and Edward F. Quaid; sergeant-at-arms, Elvin H. Mackay.



Something New!
The RED BLAST Boiler
with Blower

Here is a new and startling development in heating—a boiler with blower and regulator attached. The Royal RED BLAST Boiler will burn buckwheat and the cheaper sizes of anthracite with remarkable efficiency and little attention. It provides automatically controlled heat with a great saving in costs.

Other important features are: attractive, new insulated jacket; long combustion and flue travel; easily assembled individual tie rods; 18-in. and 28-in. sizes. Available, when desired, without blower and controls in the RED-GLO Boiler, which is otherwise similar to the RED BLAST.

Write for complete information about

RED BLAST and RED-GLO Boilers

Manufactured by

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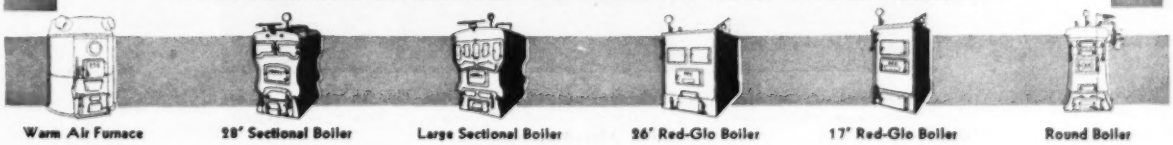
Boston New York Chicago Washington Detroit Pittsburgh

A COMPLETE LINE OF FURNACES AND BOILERS FOR EVERY TYPE OF BUILDING



Warm Air Furnace | 28" Sectional Boiler | Large Sectional Boiler | 26" Red-Glo Boiler | 17" Red-Glo Boiler | Round Boiler

Lewis R. Friend of Milwaukee, re-elected state president

Wisconsin Convention Endorses Plan For Permanent National Office

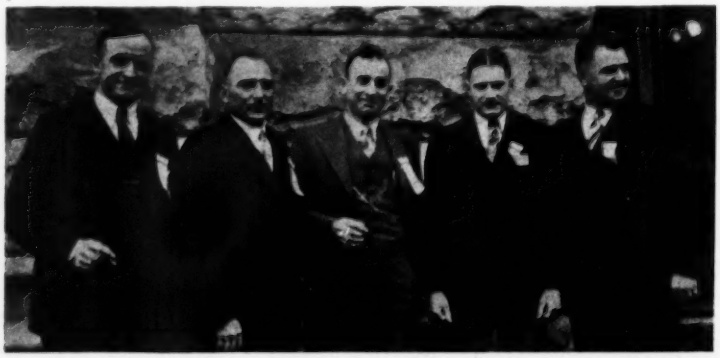
THE members of the Wisconsin Master Plumbers Association met in Milwaukee, January 13-15, at the New Pfister hotel, for the thirty-seventh annual convention of the organization. The gathering was an enthusiastic one, the delegates displaying a keen interest in analyzing business problems. It was the general feeling that the holding of the National convention in Milwaukee next June would do much to stimulate public interest in plumbing and heating in the state.

A noteworthy development during the year was the passage of the amendment to the state utility law, so that now the utilities are required to separate their sales of merchandise from other business. The association put its stamp of approval on apprentice training and voted to support this and other educational work.

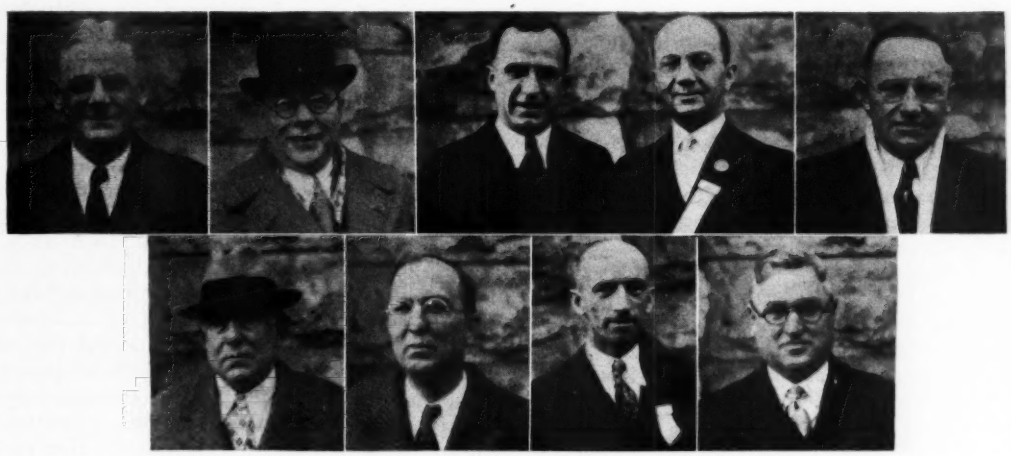
The National President, George H. Drake, told the Wisconsin delegates that the National Association of Master Plumbers is doing a great many things for the benefit of the entire industry. He pointed out that since the Boston convention last June, the directors have carried through a revision of the by-laws, the principal effect being to give the officers more complete control of the membership.

He said that a new text book is being prepared under the contract made with William C. Groeniger. The first

L. R. Friend is re-elected state president — Other officers also re-elected — Delegates display enthusiasm toward coming National convention — State educational work is endorsed.



Members of the Milwaukee entertainment committee, left to right: A. A. Hoffmann, chairman, H. A. Wegner, George Bronenkant, Clarence Savadil and Alfred Heiden



Top row, left to right: A. E. Brunk of Racine, L. J. Eron of Wisconsin Rapids and A. M. Tweet of Green Bay, all of whom are state zone presidents; Peter King of Milwaukee, assistant secretary of state association; and L. R. Schmaus of Milwaukee. Lower row: Joseph Brah of Milwaukee; Carl J. Marsh of Milwaukee, counsel for state association; W. J. Femal, secretary of Fox River Valley Association; and F. D. Branson of La Crosse

volume will be in the hands of the publishers in the next few days and the complete set of three volumes should be available for purchase through the national office in July. As a part of the first volume, the procedure to follow in securing a code is given.

With National Secretary George W. Frank, he had prepared a budget based on the membership of last July. While the membership has declined somewhat, the budget has worked satisfactorily during the first six months of his administration. He believes that this is the first time that the National office has been operated under a budget plan. One advantage he found is that a number of projects in earlier years had been started and had not been completed because of the cost running beyond the financial strength of the association. That a budget would overcome this is the opinion expressed by President Drake in his talk to the convention delegates.

He said that the work handled by the national officers is amazing to one not familiar with it. He felt that permanent headquarters located in Washington would permit the executive at that office to contact with similar executives in that city and learn of new ways to secure better results. The Wisconsin association gave its approval to the plan. A complete summary of President Drake's talk before the convention on the permanent office proposition appears on page 114 of this issue.

State Officers Are Re-elected

Lewis R. Friend, of Milwaukee, who has served as president of the Wisconsin Master Plumbers Association for the past several years, was again selected to lead the organization as president. John P. McCoy,

Top row, left to right: John P. McCoy of Fond du Lac, re-elected first vice president of state association; Charles Pelunek of Milwaukee, re-elected state secretary; and Joseph Wittig, also of Milwaukee, re-elected state secretary.. Lower row: George H. Drake of Buffalo, N. Y., president, National Association of Master Plumbers; R. H. Mattison of Milwaukee, assistant to President Drake; F. C. Kuetemeyer of Milwaukee, chairman of the National Convention and Exposition Committee; Walter Dusold, president of Milwaukee association; and George F. Reeke of Green Bay

of Fond du Lac, was re-elected first vice-president. Edward Sullivan, of Kenosha, was again selected to serve as second vice-president. Charles Pelunek, of Milwaukee, was re-elected secretary, and Joseph Wittig, also of Milwaukee, was re-elected treasurer. These five men will constitute the board of directors.

Andrew Tweet, of Green Bay, and F. Branson, of LaCrosse, were elected delegates to the national convention. L. J. Eron, of Wisconsin Rapids, and W. R. Pugh, of Racine, were selected as alternates.

The President's Report

In reporting on the year's activities, President Friend said that the slowing down in construction had made the year a poor one, with the result that the association's membership had suffered somewhat, and that interest in association projects was not quite as keen. He cited honesty as the keynote of success. In enlarging upon this, Mr. Friend pointed out that price-cutting on the part of master plumbers resulted in destroying the confidence of their customers. He urged the members to bear this in mind in their business dealings.

Mr. Friend explained the new amendment to the Wisconsin Public Utility law, which became effective January 1, of this year. The amendment to this law requires the utilities to separate their sales of merchandise and their sales of power. He reminded the members that they are faced with a tremendous task in making successful the forthcoming National convention.

Carl J. Marsh, field secretary and counsel, also gave a detailed explanation of the utility law. Mr. Marsh pointed out that the utilities spend a great deal of money for advertising, and explained that under the new amendment they are not supposed to charge this against rate making. He requested each member to keep a record of all utility advertisements in his respective territory so that definite facts can be placed before the railroad commission if, and when, necessary. Mr. Marsh urged the delegates to co-operate with the utilities as much as possible, pointing out that the latter are powerful, and that they no doubt could have the amendment repealed if they so desired.

Robert Morrill, of Beloit, described the practices of the utility company in his city in respect to sales of appliances. He explained that the company makes a liberal allowance on old appliances which are turned in. Mr. Morrill expressed the opinion that each association should select a man who is interested in the appliance game to keep a record of utility activities for Mr. Marsh.

Mr. Friend, who is also a director of the National Association of Master Plumbers, reported on national affairs in his capacity as a director of the national body. He said that a meeting of the National board was held recently in Milwaukee, at which time plans were discussed for the next National convention. He also reported on the meeting of the directors in Chicago, which was held at the time of the Presidents' and Secretaries' conference. Mr. Friend read the resolution that was drawn up at this last meeting in regard to establishing a permanent national office in

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Buffalo Model "B" Breezo-Fin Heater is for use in any type building. Due to the fact that it can be used either ceiling, wall or bracket hung, and installed in either a high or low pressure steam system, it solves the heating problems of schools, auditoriums, garages, warehouses, factories, in fact public buildings of all kinds. Write today for a copy of catalog No. 469 which gives full details on the Buffalo line of Unit Heaters.

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483 Broadway Buffalo, N. Y.
In Canada: Canadian Blower & Forge Co, Ltd., Kitchener, Ontario

"HEAT WITH UNIT HEATERS"

Washington, D. C. Inasmuch as National President George H. Drake was to be present the next day, Mr. Friend suggested that discussion on this question be deferred until the arrival of President Drake.

Peter R. King, assistant secretary of the state association, rendered a complete report which showed that the organization's membership numbered 430. Mr. King also reported on the financial condition of the organization, which proved to be sound.

Convention Committees

The following committees were appointed by President Friend to function during the convention:

Credential Committee—Joseph Brah, chairman, of Milwaukee; Walter Murphy of Sheboygan, Don Ahern of Fond du Lac, J. J. Stadler of Marshfield.

Resolutions Committee—George F. Reeke, chairman, of Green Bay; Ed. J. Sullivan of Kenosha, P. H. Schneider of Sheboygan, Thomas Long of Appleton, Charles Baumgardt of Wausau, Lewis Eron of Wisconsin Rapids, A. F. Boettcher of Milwaukee.

Auditing Committee—Patrick Curley, chairman, of Milwaukee; Andrew Tweet of Green Bay, Otto Marquardt of LaCrosse.

Memorial Committee—Robert Morrill, chairman, of Beloit; D. Stern of Milwaukee, John Feiner of Racine.

Membership Committee—Henry Smith, chairman, of Racine; F. M. Branson of LaCrosse, Erwin Knauer of Milwaukee.

Nominating Committee—Henry Weber, chairman, of Milwaukee; Ed Garot of Green Bay, Henry Smith of Racine.

Apprenticeship Committee—Henry Weber, chairman, of Milwaukee; Walter J. Hyland of Madison, L. J. Shoenleben of Racine, Adolph Zurheide of Sheboygan.

Press Committee—George F. Reeke, chairman, of Green Bay; Jacob Schuh of Milwaukee.

Sergeant - at - Arms — Henry Weber, chairman, George Soergel, L. R. Schmaus, Byron Graper, and George Black, all of Milwaukee.

Grievance Committee—Jacob Schuh, chairman, and Joseph Brah, both of Milwaukee; J. E. Farley of Wisconsin Rapids, Conrad Verbrick of Appleton, F. E. Grebe of Waupun, Jacob Zimmerman of Kenosha, George Reeke of Green Bay, John McCoy of Fond du Lac.

Public Utilities Committee — F. C. Kuetemeyer, chairman; Jacob Schuh, and L. R. Friend, all of Milwaukee; E. J. Sullivan of Kenosha, Robert Morrill of Beloit.

Cost Data Committee—Andrew Tweet, chairman; W. J. Femal and Ed Garot, all of Green Bay.

Speaks on Business Problems

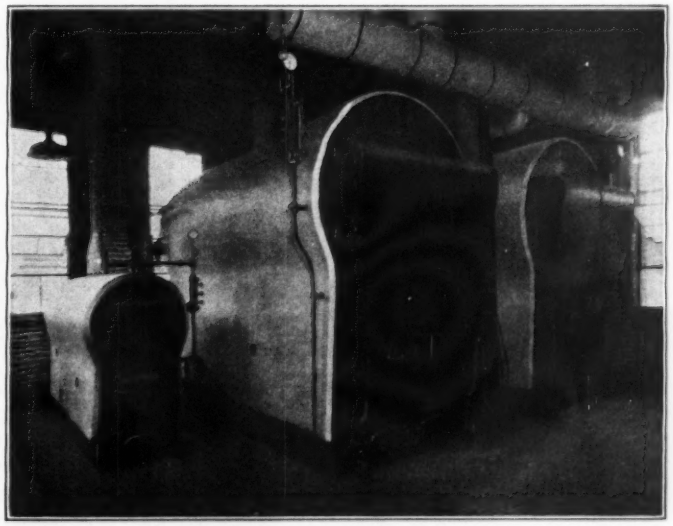
Carl J. Marsh, field secretary and counsel, addressed the convention on association and business problems. He remarked that the opposition to cost accounting methods is fast disappearing, and pointed to the city of Milwaukee as an example. A cost accounting class was organized in that city in 1929 and another one was formed in 1930, he said, adding

BOILER PERFORMANCE

The efficiency of any boiler depends upon the proper relationship of combustion, heat absorption and circulation.

JOHNSTON Steel Heating Boilers provide the necessary oxygen, the high temperatures, and the large space essential for complete combustion of all smoke-producing elements.

JOHNSTON design provides a relatively large water volume — a water line carried well above top of tubes — ample steam storage — water spaces wide and clear — all tubes of large diameter — nothing crowded, nothing forced. The result is noticeably GOOD PERFORMANCE.



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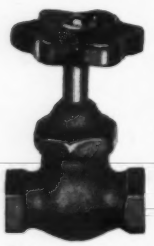
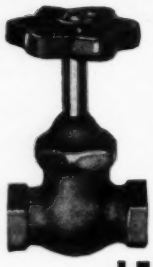
Boiler Specialists for Over 65 Years



In the making of stops and wastes, satisfaction for the user can be attained only by greatest care to detail. Men and machinery capable of minutest accuracy insure permanently perfect functioning of Enterprise stops and wastes.



Just as the making of fine parts for automobiles is a precision job, so is the making of stops and wastes for plumbing and heating. Stops that close just a hair off give passable service in the beginning but a few months later, they need replacing.

Similarly, stops that are made of metals that have not been made to measure up to high standards go bad with no end to damage and waste.

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THE ENTERPRISE BRASS WORKS

MUSKEGON MICHIGAN

that the course is expected to be repeated this year. Mr. Marsh believes it is more important to sell the idea to bookkeepers than to master plumbers. He remarked that approximately one out of ten firms use cost systems, and that about 50 per cent of the plumbing firms use a double entry system. From this he concluded that the system adoped by the Milwaukee association is the most suitable for the majority of plumbing and heating shops.

He explained that the falling-off in business interrupted the work of the cost accounting committee appointed at last year's convention, but that the committee would probably be able to go ahead after the tax returns are filed on March 15. He told of the regional management conference held in Milwaukee and also of the formation during the year of a credit organization in that city which covers the electrical contracting field and plumbing and heating. Mr. Marsh feels such a plan should be extended to include the entire building industry. The speaker also touched on the fact that while the Milwaukee board of education spends approximately $750,000 a year on construction work and repairs, only a small part of this work is given to contractors. He remarked that at least one-half of this work could be done more economically by a contractor than by the repair crews.

L. R. Schmaus, of Milwaukee, explained that the master plumbers in his city were attempting to form a Central Building Trades organization, but that they could not make any progress on this at Madison, working alone, and urged the co-operation of members from other parts of the state.

Mr. Schmaus also referred to the large amount of work being done by the Milwaukee school board through its repair crew, irrespective of cost. Like Mr. Marsh, he emphasized the fact that this work could be done much cheaper by a contractor on a competitive basis, remarking that it is high time the various building industries and the taxpayers get someone to look after their interests. "No administrative body has a right to go into competition with the taxpayers' money," he said. Mr. Schmaus stressed the need for a central body to keep in touch with all bills having to do with the building industry, that come before the state legislature.

Resolutions

The association adopted a resolution indicating its approval of the co-operation between the vocational schools of Green Bay, Appleton, Oshkosh and Fond du Lac, and the master plumbers in these cities in the matter of sales training.

In another resolution it was voted to appoint a committee to co-operate with a committee from the State Journeymens' Association and the State Board of Vocational Education in planning a program of sales training for the trade.

A resolution was also adopted by which the state association endorsed and recommended the continuance of the yearly apprenticeship conference. The short course in plumbing, which is to be given at the University of Wisconsin February 9 to 20, was endorsed by the master plumbers in resolution form.

The "State Health Week" program received the

unanimous approval of the delegates and it was decided by resolution that each member should co-operate. This program is to be held during the week that the National convention is under way in Milwaukee. The Wisconsin Association also voted to endorse the Capper-Reed vocational bill, H.R. 10821. In another resolution, approval was given the action of the National Association, State Directors of Vocational Education, and the American Vocational Association, concerning the "Memorandum of Progress."

Reports of Zone Presidents

Andrew Tweet of Green Bay, president of the Fox River Valley Association, said that regular meetings had been held in the Fox River territory during the year. Mr. Tweet explained that the members were greatly interested in cost accounting and particularly in making their journeymen "sales minded."

He brought out the point that the journeyman is the one who really contacts the American public for the plumbing and heating industry, and this fact was stressed by the speaker throughout his talk. He criticized the practice of allowing a journeyman to answer a repair call, equipped only to take care of that particular small job. He explained that his journeymen are trained to go on a job prepared to look over the entire plumbing system and are equipped to make practically any kind of a repair. Mr. Tweet feels that if such a plan were followed by all master plumbers, the attitude of the public toward the plumber would soon change.

He believes that the journeyman is more than willing to sell material, but that he is afraid to try. He remarked that much of the success of the chain store is due to the fact that the manufacturer has control of his outlets, adding that the manufacturers in the plumbing industry are not working with the journeymen as they should. Emphasizing the importance of the journeyman, Mr. Tweet said that his journeymen had ten times as many contacts with the firm's customers as he himself.

The speaker referred at some length to the educational plan developed by M. M. Hanson, itinerant plumbing inspector in the Fox River Valley, which is now being used there. He explained that the Wisconsin Journeymen's Association was entirely in accord with the idea of teaching journeymen to sell.

D. H. Osborn of Beloit, president of the Southern Wisconsin Sanitary Club, reported that some of the locals in the territory were functioning satisfactorily, but added that the organization which he heads was not. He reported a lack of enthusiasm on the part of the members.

L. J. Eron, of Wisconsin Rapids, president of the Wisconsin River Valley Sanitary Club, reported that regular meetings were held in 1930. He said they were working on a plan to secure an itinerant instructor for the territory, and that they already have an educational program. He remarked that several shops are successfuly using the repair kit mentioned by Mr. Tweet.

Tell Plans for National Convention

F. C. Kuetemeyer, chairman of the Convention and Exposition Committee, National Association of Master Plumbers, addressed the convention on the forthcoming national meeting. He said that this was the biggest job that had ever confronted the Wisconsin association. He pointed out that the convention and exposition means a great deal to Milwaukee and the entire state, as it will interest many of Wisconsin's citizens in modern plumbing.

Mr. Kuetemeyer reminded his audience that the Wisconsin delegation had invited the National Convention to come to Milwaukee and that it was the responsibility of each Wisconsin master plumber to make the convention the most successful that has ever been held. He referred briefly to the "State Health Week Program" that is to take place during the period of the convention, and urged wide participation in the project.

R. H. Mattison, assistant to National President George H. Drake, said that the large attendance and interest that was shown in the state convention indicated a highly successful National meeting in Milwaukee.

Report of Membership Committee

In its annual report, the membership committee recommended that in the case of delinquent members, the board of directors appoint some person living in the same territory to try and collect the membership dues of the delinquent member. It was further recommended that the expenses of the party selected to collect these dues be paid by the association, and also that the zone secretary be informed whenever a member is suspended.

A motion was adopted to appoint a committee to investigate, in the southern part of the state, so as to determine whether or not a plumber who is selling labor without selling merchandise can do so profitably.

In another motion, it was voted to appoint a committee to study the selling methods of mail order houses and other

Top to bottom: E. F. Higgins, Milwaukee; A. J. Wiest, Sturgeon Bay; George B. Belike and M. L. Fish, both of Wausau; A. F. Cherne, Eveleth, Minn., and C. A. Mohrhusen, Milwaukee

Top to bottom: Harry Morris, Racine; J. E. Robertson, Wauwautoosa; Reinhard Wenzel, Appleton; Len Soergel and George Soergel, both of Milwaukee, and J. B. Johnson, Sturgeon Bay

such organizations, and also to study the new building plan of these organizations.

During the past year the Wisconsin association has lost the following members through death: George Rahn, Hugo Lippert and Joseph Junek, all of Milwaukee; A. R. Marson, of Wausau, and Fred Steffen, of Manitowoc. A brief memorial service was held in memory of these men.

"Building Confidence"

C. W. Wanger, president of Woodward-Wanger Co., Philadelphia, Pa., gave the members some practical ideas on business conduct which could be applied to their every-day business. His general theme was "new times demand new methods and new men."

He stated that there are certain sound principles that, if adopted, would bring success to any plumbing business. He listed sound management as the most important business principle. Mr. Wanger stressed the need for every association member to contribute constructive ideas to the organization. He said he was much impressed with the progressive work being done by the members of the Fox River Valley Association. Careful selection of store employes, journeymen and other help, the proper location of the store, and neat personal appearance of the master plumber himself, were mentioned by Mr. Wanger as essential in building confidence.

Entertainment

The Milwaukee committee is to be highly complimented on the convention arrangements and also for the splendid entertainment program. The annual dinner and dance was held Thursday evening, in the Fern room of the hotel. During dinner, music was provided and professional dancers and singers added to the enjoyment of the guests. The latter part of the evening was spent in dancing. The members of the entertainment committee were: A. A. Hoffmann, chairman, H. A. Wegner, George Bronenkant, Clarence Savadil, and Alfred Heiden.

Other Convention Speakers

The convention was officially called to order by President Friend, with an address of welcome by Walter W. Dusold, president of the Milwaukee Master Plumbers' Association. Honorable Daniel W. Hoan, mayor of Milwaukee, was scheduled to address the opening session. However, he was unable to keep the appointment and was represented by the city health commissioner. The latter told of sanitary conditions in Milwaukee and credited the master plumbers as being largely responsible for the low death rate in the city.

One of the most interesting addresses was that of George P. Hambrecht, director, Wisconsin State Board of Vocational Education, whose subject was "Economic Value of the Part-time Schools for Plumbers." He remarked that 150 years ago education was a matter of individual concern, but that gradually it was realized that the prosperity of a nation depended upon intelligence. Mr. Hambrecht stated that the state of Wisconsin is convinced that it pays to invest in certain types of vocational training, and that the state has taken steps to see that this is provided.

G. W. Wray, U. S. Bureau of Standards, Washington, D. C., read an interesting paper on the standardization of plumbing fixtures.

Mr. Wray said the great diversification of dimensions is an outstanding problem in the plumbing industry. This, he said, results in much waste of material and money and makes it difficult for the plumber to figure roughing-in measurements.

An interesting phase of the convention was the motion picture, "Arteries of Industry," which was shown through the courtesy of the National Tube Co., of Pittsburgh, Pa. B. H. Rickard and H. W. Mollison were present as representatives of the company. Mr. Mollison read a paper entitled, "Corrosion in Plumbing Systems, Causes and Preventive Measures."

Frank R. King, director, Bureau of Plumbing and Domestic Sanitary Engineering, State Board of Health, Madison, made a complete report on the progress of sanitation in Wisconsin during the past year. Abstracts from Mr. King's report will appear in later issues.

Professor F. M. Dawson, Department of Hydraulic and Sanitary Engineering, University of Wisconsin, outlined the special short-course in plumbing which is to be held at the university February 9 to 20. Professor Dawson explained that the course was something new, and that the program had been arranged with the idea in mind of making it as practical as possible.

Herbert V. Kohler of Kohler Co. in a short talk to the Wisconsin convention, pointed out that the contractor has much to do in offsetting the competition of the direct-to-you houses. He said that building prospects for the next few years are not sufficiently encouraging to justify contractors waiting for new work so that they should concentrate more on remodeling as a means of making profits. He also extended an invitation to the delegates to the Milwaukee national convention to visit Kohler, Wis., next June.

T. W. Merryman, master plumber of Chicago, read a

paper describing his plan of certified plumbing installations. Mr. Merryman believes that the certified master plumber would benefit from such a plan in patronage, profits, prestige and business far greater than any cost to him. Mr. Merryman's plan was described in detail in an article which appeared in a recent issue of DOMESTIC ENGINEERING.

Speaks on Apprenticeship

Walter Simon, Supervisor of Apprenticeship, Wisconsin Industrial Commission, addressed the convention on "Maintaining Proper Relations Between Apprentice and Employer." He said that the commission has had the finest kind of co-operation from the apprenticeship committee of the Wisconsin association. Mr. Simon remarked that in apprenticeship work a great deal depends on the instructor, adding that the apprentice is already interested in plumbing when he first starts. "It is here," the speaker said, "that the employer's ability as a teacher is put to the test." He expressed the opinion that it was up to the employer and not the commission to reprimand the apprentice for any shortcomings.

Dr. Charles A. Harper, of the state board of health, remarked that as a member of that body he wished to thank the association for its sincere help and co-operation in health measures.

In speaking of the apprenticeship movement, Dr. Harper suggested more care in selecting boys with a sound primary education. He recommended a boy having at least two or three years of high school training.

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How Noise Was Eliminated In Duct Work

(Continued from Page 61)

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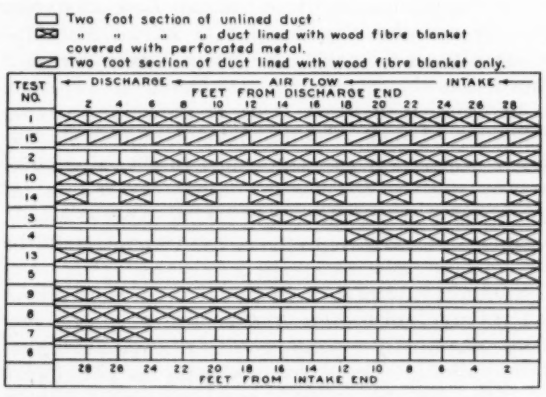

Fig. 6—Arrangement of test ducts in the order of their effectiveness, from the top down. The most effective, of course, is the fully insulated duct. It is interesting to note that according to tests 5 and 9, 6 ft. of insulation at the intake is more effective than 18 ft. of insulation at the discharge

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Fig. No. 227

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President Drake Talks on Permanent Office for National Association of Master Plumbers

A PERMANENT office for the National Association of Master Plumbers is being recommended by the officers and directors, following a special board meeting in Chicago on January 6. Washington, D. C. is recommended for its location.

At the Wisconsin state convention, the National President, George H. Drake, had his first opportunity to discuss this question and to tell the reasons which led the board to recommend a change in the policy which the National Association has followed since its organization, that is, moving its headquarters from year to year to the city where the newly elected president lived. The active discussion of this question for some years adds interest to the remarks of Mr. Drake.

He said that the directors after careful analysis of this question were convinced that a permanent office located in Washington was desirable. This question had been considered many times before without winning approval from the delegates to the national convention. Mr. Drake spoke of the question frequently raised about the difficulty of managing the association with permanent offices in one city and the president in another. He felt that the past two years had answered that question as he had maintained headquarters at Philadelphia, after the death of President John A. Quinn, running the affairs of the association from his own office in Buffalo. The arrangement functioned efficiently and he feels this proves that it is not necessary to have the office follow the president.

The executive in charge of the permanent office will not take the place of the national president or secretary, the members continuing to elect those officers. He feels that with such a plan the officers and directors can keep as fully informed as they do now. The various national association committees can work as effectively while the work of handing a convention and exposition can be handled more efficiently, according to Mr. Drake.

He said that the analysis lately made by auditors shows that the cost of maintaining a permanent office will not exceed the present cost. While larger offices and more clerical help might be required, the total cost would be the same as various savings would be made in printing bills, furniture, etc. A tentative budget has been prepared calling for an additional office assistant and funds would be readily available.

His administration, Mr. Drake said, recognizes that modern demands require an association to give more service to its members. Such an association must be prepared to work effectively with manufacturing and distributing branches. He pointed out the advantage of Washington in permitting such increased service because of the location in that city of agencies such as the Department of Commerce, Federal Trade Commission, American Federation of Labor, journeymen's association, Chamber of Commerce of the United States, Electrical Guild of North America and many other related associations. Also the National Plumbing and Heating Institute will establish headquarters at Washington and the Heating and Piping Contractors National Association is considering removal to that city.

He said that this question had been brought up at the board of directors meeting at Milwaukee last October and had been closely studied since that time by the individual directors in their home territories. Their reports as well as an analysis of the discussion of this question at previous conventions had all been gone over at the Chicago meeting before the approving vote was taken.

Mr. Drake feels that the arguments against such permanent headquarters are frequently sentimental ones. He repeated some of these arguments such as the fact that the association had been successful under its present plan of organization; that no board of directors had ever recommended the change which would indicate that such boards were satisfied with the present plan under which they directed association affairs; the expense.

He points out that politics and personal feelings should not influence any one's judgment on this question nor influence the question of selecting the personnel of the office. He recalled that the association itself during the past three years had been working toward a more permanent organization, indicated by the fact that one man has been in charge of the exposition for the past three years while the delegates at Boston last year empowered the officers to make a long term contract with the executive secretary who already has served under four presidents.

In addition to Washington providing the means of more contact with government agencies than any other city, Mr. Drake pointed out that placing headquarters there answers the bothersome question of choosing between several other cities whose members might want the headquarters.

Mr. Drake referred to the question frequently brought up in earlier discussions of this question regarding the establishment of a permanent office leading to the publication of an official association bulletin. He said that this would be a serious move for the association to make. President Drake does not believe that this should be considered at any time but particularly not now. He pointed out that the publication of such a bulletin would require the expensive services of experts skilled in that particular work as well as considerable other expense in inaugurating a new publication. This expense would fall upon the association unless the revenue could be built up.

Mr. Drake said that the manufacturers from whom such revenue must come in the form of advertising do not take kindly to a suggestion of establishing an official bulletin. These manufacturers see the chance that such a bulletin might be used as a club to secure advertising and Mr. Drake emphasized that the National Association of Master Plumbers does not want to see such a feeling toward contractors developed.

After Mr. Drake's talk, a motion pledging the Wisconsin organization in favor of the permanent office at Washington was made by Jacob Schuh and approving comments were given by A. J. Maag, Joseph Wittig and E. Henoch.

Jos. G. Hildebrand Elected Secretary-Manager of P. and H. Industries Bureau

Joseph G. Hildebrand, director of Regional Management Conferences for the Plumbing and Heating Industries Bureau, was elected secretary-manager of the bureau at a meeting of the executive committee at the Congress hotel, Chicago, on the evening of January 6. Mr. Hildebrand succeeds E. L. Flentje.

In the selection of Mr. Hildebrand, the committee recognized the executive ability, the energy and the enterprise which he demonstrated in the direction of the fourteen Regional Management Conferences which he has conducted for the bureau in various cities in the Middle West since July 1. The total attendance of contractors, employes, wives of contractors, and representatives of wholesalers and manufacturers at these conferences was nearly four thousand.

Joseph G. Hildebrand

Mr. Hildebrand has had a varied experience in the plumbing and heating industry. He began by working with the tools as a plumber in a New England town. Later he had a plumbing contractor business of his own. Subsequently, he became manager of a wholesale branch. He held this position for eight years, after which he became sales promotion manager for a wholesale-manufacturing firm in the East.

Thus, he has had an all-around practical experience which in the opinion of the executive committee of the bureau, fits him exceptionally well for the difficult task of manager and secretary of a trade association composed of all branches of the industry.

Following the announcement of his election as manager of the bureau at the Presidents' and Secretaries' Conference in Chicago on January 7, Mr. Hildebrand said to the association officials:

"I want you to feel that we of the bureau staff are here to serve you. It's your bureau. Every member of the bureau is sincerely anxious to have you and your associations avail yourselves of all bureau services.

"The bureau will continue to work closely with the two national associations. Its purpose is not now, nor has it ever been, to supplant or take the place of any existing association or associations. Its purpose is solely to assist associations and individuals."

At the meeting of the executive committee, Mr. Flentje, retiring secretary, reported the bureau finances in satisfactory condition.

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Bakersfield, Calif., Masters Elect Officers

The Merchant Plumbers Association of Bakersfield, California, has elected the following officers to serve during the coming year: E. G. Norris, president; L. F. Stange, vice president; and I. Rees Jones, secretary and treasurer.

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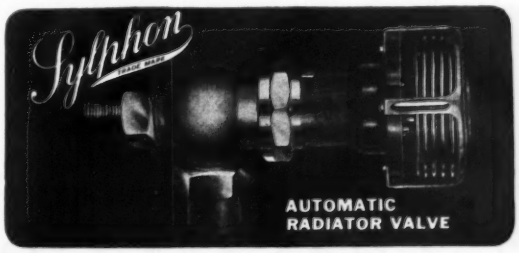

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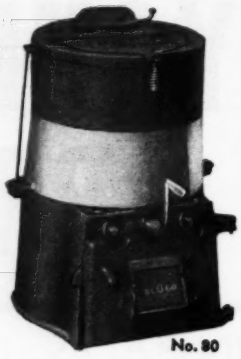

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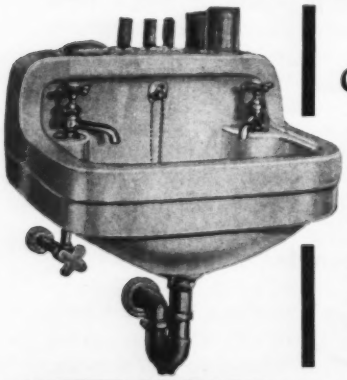

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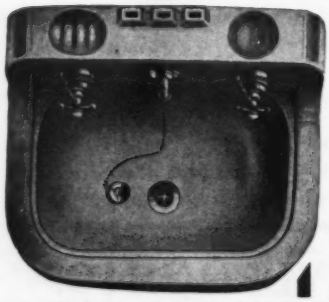

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Write for complete details.

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Oil Burner Installations

(Continued from Page 58)

merely verified by Fig. 4 which represents the same story as Figs. 2 and 3 combined.

Now, conditions on individual jobs may necessitate some departure from this setting. A certain job may be over-radiated which means that the size of flame as determined from the above method will be needlessly large. In other cases the boiler capacity may be so limited that it will prove advisable to cut the size of the flame somewhat below that recommended according to the above procedure. A certain amount of judgment must be used under varying conditions of practice.

This fixes the fuel rate. The other important factor affecting burner efficiency is the air-fuel ratio. As shown in a previous installment of this series, it is theoretically possible to have a flame which produces 15 per cent carbon dioxide in the stack gases and in which there is no excess air. Like so many other things which are theoretically possible, this too, is in practice not feasible. There are various reasons why the automatic domestic oil burner may not be operated with a limited amount of excess air as can the ordinary industrial burner. In the first place, when the domestic oil burner is operated intermittently, starting occurs many times when the combustion chamber is relatively cold and the draft is almost negligible. Excess air is needed under such conditions to minimize the amount of smoke and soot formed. The domestic burner as contrasted with the industrial job must be virtually free from the formation of smoke at all times. Then again the domestic burner is adjusted once and for all and any changes in draft due to varying atmospheric conditions must be provided for in the original adjustment. The oil burner agent cannot afford to send a service man to each of his jobs to vary the air setting for each change in atmospheric conditions.

Then if it is agreed that a certain amount of excess air is required, how much is required? When the writer encounters a job in practice giving 9 or 10 per cent CO_2 he calls this pretty good operation. Ten per cent CO_2 means 50 per cent excess air according to curves presented in a previous installment and this should represent a reasonably good factor of safety and yet provide good combustion. Some burners may be able to operate with less excess air and still others may require considerably more excess air. Much depends upon the boiler. Fifty per cent excess air may result in smoky combustion in one boiler and not in another. At any rate, the excess air should not be reduced at the expense of good, clean combustion.

Unless a flue-gas analyzer is used, the flame is generally set according to appearance of the same, and some men become quite proficient at judging the value of an adjustment on this basis. A stack thermometer is of value if an analyzer is not available since changes in excess air are indicated by corresponding changes in stack temperature. Decreasing the excess air produces a decrease in the stack temperature if the fuel rate remains unchanged. By successive adjustments of air quantity and reading of the stack thermometer, the best feasible setting can be obtained.

Practical Issues Dominate Presidents'-Secretaries' Conference

Information rather than inspiration adopted as ideal of three-day meeting in Chicago

Regional Management Conference staged for officials attending; outside competition discussed; important announcements made

THAT there is a general recognition among officials that associations are more than ever under the necessity for justifying their existence, was indicated by a remark made by one of the secretaries at the Ninth Annual Presidents' and Secretaries' Conference, held under the auspices of the Plumbing and Heating Industries Bureau on January 5, 6 and 7, in the Congress Hotel, Chicago. He said: "Grandstand plays are of no value, but hours of patient work will enable the secretary to be of real assistance to his members."

This conference carried the ideal in practical programs to new lengths. Discussion from the floor was probably more general than at any previous meeting of this kind. Inspiration talks were eliminated, being replaced by discussion and informative presentation of the subjects on the agenda.

Two announcements of major interest were made during the course of the three-day meeting. P. W. Donohue, vice-president of the National Association of Master Plumbers, reporting briefly the meeting of the directors of that organization indicated that the board had agreed on a favorable stand towards the idea of a permanent office, which would be located in Washington, D. C. George H. Drake, president of the national association, announced that the directors of the Plumbing and Heating Industries Bureau, meeting on Tuesday, had selected Joseph G. Hildebrand, who has been director of the regional management conferences since last July, to be secretary-manager of the bureau, succeeding E. L. Flentje, now commissioner for the National Plumbing and Heating Institute, Inc.

The outstanding event of the conference was, of

George H. Drake, President, National Association of Master Plumbers

Walter Klie, President, Heating and Piping Contractors National Association

course, the presentation of a typical regional management conference, which took up the entire second day. On this day, for the information of the association officers present, the bureau offered the complete dramatized conference as it has been staged in various communities. Thus those officials in whose localities a conference has not been held were able to see just what the bureau had to offer in this newest development of its field work.

Discussions Bring Out Practical Information

Discussion, while it filled a large portion of the program, was notable for its practical character and for sticking to the point at issue. Following the presentation of any subject by the man appointed, the chair called for criticisms and suggestions from the floor, thus making available the experience of the various associations on a particular matter.

Among the subjects covered in the discussions were: Public utility relations, accounting, membership problems, co-operation with other branches of the building industry, codes and legislation, mail order competition. A great deal of attention was given on the last day to the necessity for work in the various localities following the staging of a regional conference management, in order to make permanent the work begun by the conference.

The conference was strictly a business meeting, the secretaries and presidents voting no on the question of a banquet.

One example of the practical and helpful facts brought out by the discussions will serve to indicate the type of information uncovered. It was noted in the discussion on bookkeeping classes that frequently the number of those who started the class fell off sharply after a few weeks. Peter King, assistant secretary of the Milwaukee, Wisc., plumbers' group said that they had discovered this: A man started in with the bookkeeping class. Being a business man he could not always be present at every session. The result was that, having missed one or two classes, he fell behind in his work and felt that it was not worth while coming back. By arranging to take care of the work in such a way that missing a class or two would not discourage a man, Mr. King felt that the loss in membership from this cause would be eliminated.

Donoghue Report for National Board of Directors

The meeting of the board of directors of the National Association of Master Plumbers was held on the second day of the conference. On the last day, P. W. Donoghue, at the request of President Drake, reported briefly to the presidents and secretaries, as follows:

"You have all been aware that for a number of years one of the great questions before our national organization was the question of a permanent office. Opinion has been divided when the idea was mentioned in connection with any particular city. Your present board of directors has taken a definite stand on that question. After going at it from all angles for the past six months, your national board has prepared a resolution to be sent to our national convention in Milwaukee, in which the national board favors a permanent office and that permanent office to be located in the city of Washington, D. C. We believe that this is a step in advance. We believe that we can't function and give the membership the service it needs with the 'roving office,' going from city to city each year. We believe it will be of great value if adopted."

Great importance attached to need for sales training to follow holding of Regional Management Conferences. Bureau officials report that an experimental Sales School is now being conducted near Chicago to develop program to be used by associations in order to make permanent results of the Regional Management Conference

Regional Management Conference Is Staged

The second day of the meeting was given over entirely to the complete program of a typical regional management conference, fifteen of which have been held in various communities, and to discussions from the floor.

Everything in the regional management conferences is presented in the form of action. The opening sketches show the correct and incorrect use of the telephone. Here a girl is seen in the plumbing and heating store, and her use of the telephone, and her manner of greeting customers and serving them when they phone is seen as she acts the part of the inefficient type and of the efficient type.

This is followed by a one-act play called "The City Plumbing and Heating Company," in which the office girl, having attended a regional management conference, puts some of the things she has learned into practice. She gets the journeyman to clean up, she makes the wholesaler's salesman run down a sales lead, and she makes sales in the store.

The second part of the conference, staged after lunch, was in the nature of a follow-up to the morning's sketches. The journeyman is seen in the home. He is in white overalls, he does the preliminary work of interesting the housewife in an automatic water heater, and he is very careful about leaving no dirt behind him. Then follows a sketch in which two partners talk over the matter of overhead. One partner is the sales type, the other the inside man. They argue over a job that is up for consideration. The firm is one hundred dollars high and the selling partner is disgusted with the idea of overhead, because all he can say for it is that it is costing him jobs. He is finally convinced by his partner that he is salesman enough to make another try at getting that extra one hundred dollars. In the next sketch we see him making his call, and we follow his sales arguments as he convinces the housewife that for her own protection and satisfaction, she can not afford to take a cheaper job.

There follows the sale of a radiator heating system, when the home owner has sent in a call for repair parts to a furnace. In this sketch, the salesman makes clear

the advantages in comfort, convenience and healthfulness that lie with radiator heating, and makes the sale.

The last sketch in the series is entitled, "A Master Sale." In this case, the wholesaler's salesman is seen in the home, trying to sell a modern sink. This sketch is produced largely in an extemporaneous way. The salesman was forced to work against all manner of objections and interruptions. During the course of his attempt to sell the sink, the head of the family returns from a sales trip and tries to get him to put off his sales talk for a few days. But the salesman held on through this, and many other interruptions—even including some small difficulties between the man and his wife—and clinches the sale. It was, as Mr. Hildebrand said later, "truly a master sale," because the two people who played the part of man and wife exercised a great deal of ingenuity in trying to throw obstacles in the way of the sales talk.

Details of the Conferences

Explaining the conferences at various points during the three days, Mr. Hildebrand tried to make it clear that they are self-supporting. The bureau's portion of the expense is paid by the bureau. Each person who attends is expected to purchase a ticket and the price of the tickets is estimated in advance, in accordance with the number of those who will probably attend. The only expense which may be entailed is that it may be necessary to have some of the cast for the various sketches brought from another city. In that case, their traveling expenses must be figured in the price of the tickets and so provided for.

Mr. Hildebrand asks for three weeks' time in which to train a cast. Requests for conferences are sent to the bureau, and take their turn in the schedule. When a new cast is being trained, Mr. Hildebrand says that the bureau insists that there be at least four conferences planned at which that cast may be used. This, of course, cuts down the training time, as it would be impossible to train an entirely new cast for every conference. At Chicago, the cast was composed of those who had appeared in the sketches in Milwaukee, Wis., and Indianapolis, Ind., at previous field conferences. As to the cost locally, one of the secretaries present reported that there had been a difference of only about twenty-eight dollars between the cost of the conference and the receipts from it.

"The purpose of the bureau in presenting this program," explained Mr. Hildebrand, "was so that you gentlemen would be thoroughly familiar with the program and if you think well of it, will go back to your cities and perhaps arouse interest in having one of these presentations in your community."

On the question of attendance at the conferences in the field, Mr. Hildebrand said that it was customary to encourage the journeymen to attend, with their wives. Something like 75 per cent of the journeymen in the cities where the conferences were held have been present at the meetings. In some cities the employers bought tickets for their journeymen; in others, the journeymen were expected to buy their own. Wholesalers and manufacturers have supported the conferences enthusiastically, sending their entire sales forces to attend the all-day meeting. Mr. Hildebrand also indicated that a banquet is planned for the evening of the conference, as

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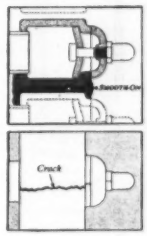

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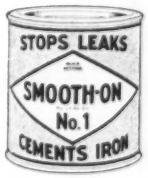

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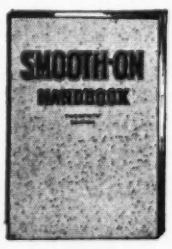

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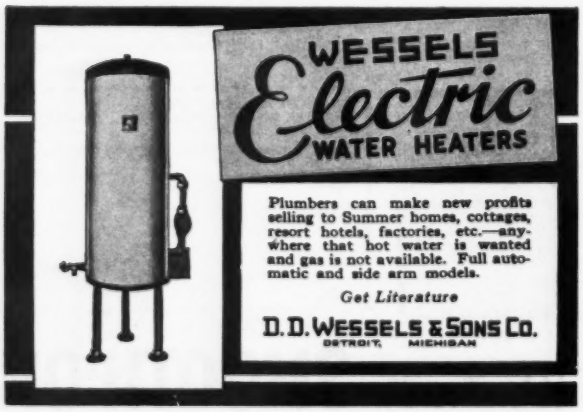
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it seems impossible to secure a satisfactory attendance without such a social affair.

G. T. Watson, secretary of the Indianapolis, Ind., Merchant Plumbers Association, gave an interesting and amusing account of the very successful conference held in that city. He admitted that when Mr. Hildebrand called upon the association with the idea of holding a conference, it was necessary for him to work hard to convince them that the conference would be a good thing. Following this, the local wholesalers were enthusiastically in favor of it, particularly after having attended the winter meeting of the Central Supply Association in Chicago and there viewing a special sketch prepared for that meeting, and hearing an explanation of the regional management conference idea.

Reports of Conferences Held

Attendance at the Indianapolis conference far exceeded expectations, and Mr. Watson was able to report several concrete examples of the fact that the meeting bore fruit. Shortly afterward he had a report from one of his members who had just about given up hope of getting a job on which he was fifty dollars higher than his nearest competitor. Fired by the sketches he had seen, he took another chance, and was happy to report that he had secured the contract, at his own price. Another contractor said that, as a result of the conference, he was completely refurnishing his office. In still another case, the wife of a master plumber, who was not handling an electric refrigerator, heard that a friend was thinking of buying one. As a result of the conference, she urged the master plumber to call on this person. He did so, and made the sale. The amusing feature of Mr. Watson's review of the results of the conference in Indianapolis was this: It seems that the young lady who, in the sketches, played the part of the inefficient and unpleasing telephone girl, was named "Mazie." Following the conference, if one member called another and received the usual off-hand answer, he immediately said: "Hello, Mazie!" which indicates that the members are checking up on each other.

Walter Klie, president of the Heating and Piping Contractors National Association, was in the chair during the day of the staging of the conference. Commenting on the session, he said: "I have read the biographies of men who have made outstanding successes in their walks of life, and if there is one thing I have been impressed by in this reading is the very small difference between success and failure. If you read these sketches or biographies you begin to wonder what there was about these particular men. You are inclined to look for some unusual, outstanding difference from the normal man. As a matter of fact, you very seldom find it because there is a very thin line of demarcation between operating any line of business successfully and unsuccessfully.

"A very small thing, like a telephone girl, can have an enormous influence on the growth of a business. Whether the reaction of the prospective customer is one of respect and confidence or is just the opposite, is so easily influenced by his telephone reception. Things like that are brought out vividly in these sketches."

Following the afternoon session, Mr. Klie commented on the fact that there might be a sketch on what he called "preferential selling." To illustrate what he meant,

he told of a contractor who was $52,000 high on a job. During the two months that the job hung fire, he continued to present to the prospective owners the various facts which he felt they ought to have in order to judge rightly of the value of his bid. In the end, he convinced them that the $52,000 represented something that must be in the job if it was to be entirely satisfactory, and he got the job with that difference in price in his favor.

E. L. Flentje, now commissioner of the Plumbing and Heating Institute, Inc., when asked to comment on the day's session, spoke, as he said, as a "professional secretary," and urged those secretaries present to take advantage of the conference idea as a means of making themselves more valuable to their associations and so increasing their earning capacity.

How to Make Conference Results Permanent

On the last morning of the conference, President Drake again took the chair. The whole purpose of this last day's meeting was to discuss ways and means of making permanent the educational efforts set under way by the regional management conferences. National Director Edward Kleine of Cincinnati, Ohio, opened the meeting with an address on the use of the conferences as a means for increasing membership in the national associations.

"I had the privilege of being with Mr. Hildebrand," he said, "in arranging a number of these conferences and the reaction has been most pleasing. I am not in a position to say to you at this time that any increased membership has occurred, but it certainly has acted as a tonic. At the time the conference was brought into Cincinnati, our association was in somewhat the same situation as other associations throughout the country. We were losing membership. This conference in Cincinnati has pepped up our membership. There is a new feeling of optimism and you would be surprised at the attitude as regards that conference. I get the same report from Dayton. National Director Beier tells me the conference in Minneapolis has actually been responsible for an increase in membership. That is most gratifying because at this particular time I think every association in the United States is faced with the possibility of a loss in membership.

"I found that you get whole-hearted support from the wholesaler and manufacturer. The spirit of cooperation that we had in Ohio was most gratifying. They are more sold on these conferences than the contractors."

Mr. Kleine said that there was an attendance of 653 at the Cincinnati conference, due to the fact that the salesmen of the wholesalers in their visits to contractors had talked about the conference and urged the latter to attend. In concluding, Mr. Kleine said: "It is a bit early to measure the results of this conference at this time, but I can say that if you will put one on in your city it will help to revive the spirit of your associate members."

A. Bachman, secretary of the heating association in Cincinnati, was asked by Mr. Drake to give his impression of the results of the conference. "I believe that the good of the regional conference," he said,

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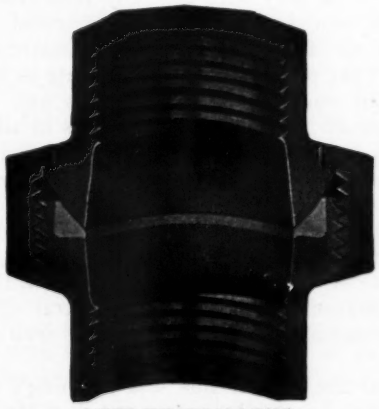

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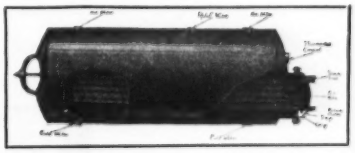

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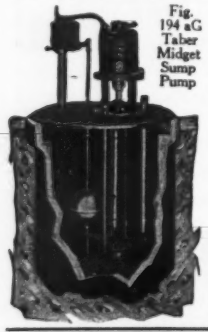

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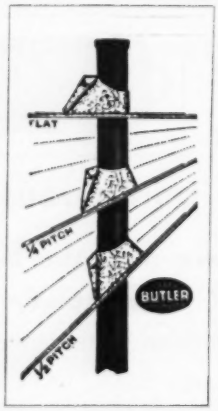

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"depends entirely upon the way you follow it up. It is true we had a wonderful turnout. The good that will come out of that conference will depend on what we do from now on. I believe it is a way to gain increased membership."

President Drake, referring to the discussion of the conferences by the executive committee of the bureau, interposed to say: "The discussion was rather general, of course. But it was recognized by the executive committee that we must capitalize on the enthusiasm and the impetus secured by the original conference. The bureau is conducting at the present time a test selling school in the vicinity of Chicago. The purpose of doing that is to get as many 'bugs' ironed out as possible, before they submit the plan to the country at large.

"The active management of the bureau told us last night that they were not really ready to present the plan because it is just in the making. It was agreed that a serious mistake would be made if we do not capitalize to the fullest extent on these conferences by a proper follow-up." Mr. Drake also indicated that it was felt that the follow-up work should be carried on by an informal group; and that it had been pointed out at the meeting of the executive board that this follow-up work must be so handled that a new organization, apparently a rival to those existing, would not be set up. Rather it is the intention of the bureau to work with contractors, wholesalers, etc., without any organization, dues, by-laws, or anything to make a job for any one.

Sales Plan Ready Soon

In answer to a number of questions from the floor, Mr. Hildebrand said: "It will be the policy of the bureau that whatever we do following this sales school experiment will be done and cleared through the executive offices of the two national associations. We want to be very sure that any plan that is advanced has been thoroughly tried and tested, so that we can get all of the defects out of it before passing it along. That plan will be passed along to the officers of your two national associations and will be cleared through them to the secretaries in all of the different localities. I wanted to make that point clear because we want to be sure to capitalize to the fullest the prestige of the two national associations and have them thoroughly in accord with whatever follow-up is devised.

"In six or seven weeks you gentlemen will be receiving communications from the central offices of your two associations, when our plan is well enough developed."

It was at the end of this last morning's session that Mr. Drake formally announced that Mr. Hildebrand had been selected as secretary-manager of the bureau. In acknowledging Mr. Drake's remarks, Mr. Hildebrand said: "You all realize quite well what the bureau is and what it is attempting to do. The success of the bureau will depend entirely upon the manner in which you presidents and secretaries and your members avail yourselves of the bureau services. I am only one humble cog in the wheel. We do feel that we have an organization that can honestly serve the industry and we want you to feel and realize that we are sincerely anxious to serve in any

Lack of space does not permit publication of all of the information developed at the conference. In our next issue will appear the important discussions of: Cost Accounting; Codes; General Contractor Relations; Utility Company Relations

capacity within our ability and experience. It is your bureau, and we want you to avail yourselves of it."

Experimenting with Sales Schools

With interest centering on the work to follow the regional management conferences, the remarks of Nathaniel S. Finney, editor of the bureau's bulletin, who is working with the Lake County Sanitary and Heating Engineers Association on the experimental sales school, were listened to attentively.

"In following Mr. Hildebrand into communities where conferences had been held," he said, "I found a good deal of real enthusiasm. I found in some places men who had in their minds a desire to go on with some sort of program. I found that true in Minneapolis and to a marked degree in Sioux City, Ia. There is a genuine desire for follow-up work, stimulated by the conferences. That led us to believe that if something could be worked out by which we could place material in the hands of local officials, so they could organize their own sales courses, the work would be pretty much taken care of.

"At the present time, with the co-operation of the Lake County group, the bureau is putting on an experimental sales school. We want to have as much information as we can. In starting a school of that sort, I think it is necessary to reach some conclusion as to what the objectives of the school are. Once the question of objectives is settled, we want to know what methods we are going to use. The lecture method is not entirely successful. In the past it seems to me that we have led the contractor to the door and then left him there. That is where 85 per cent of the men who are not trained on how to get in will stay.

"Lectures tend to be inspirational. What we want is informational material. So, while a certain amount of lecture work is necessary to clarify some of the things we are working on, I do not think the lecture method purely and simply will work. Success in a sales school has no other meaning than increased sales. Another method is that of discussion and I think you will all agree that we get farther with discussion, criticism, etc. But there is a third method that the regional conferences have shown to be the best method—dramatization. Dramatization is condensation. When people talk about things they go to the point. A lecture or a discussion may get clear off the point. So we feel that the basic method of teaching salesmanship should be dramatization, the secondary method should be discussion, and the third method should be lecturing."

Following a sales demonstration in the school, built around a particular product, Mr. Finney suggested a number of points of discussion which will take place under four divisions: The product, the sales situation, the sales presentation and the close. The points which will be used to test the demonstration the class has seen will be:

Did the salesman know his product?

Did he know the product in terms the prospect would understand?

Did the salesman grasp and capitalize the situation of the prospect?

Did the salesman present his product completely and in such a way as to make an appeal to the prospect's buying motives?

Could the salesman paint word pictures of that product as it offers convenience to the customer's daily life?

Did he demonstrate his product when he had an opportunity?

Did he handle his competition correctly?

Did he make his product seem worth the price his prospect objected to?

Did he oversell himself in trying to close?

Did he miss a good chance to close?

Following this discussion the lecturer sums up what has happened and what has been learned.

"Out of this Lake County school," continued Mr. Finney, "we want to make a manual of instruction and text material for study. We want to have, in simple printed form, a manual that we can put in the hands of the secretary that will tell him how to put on a sales school in his own community?"

Experiment Not Yet Completed

In the discussion which followed Mr. Finney's talk, Mr. Hildebrand said that the bureau did not want to release anything on the sales school, even to those communities where conferences have already been held, until the Lake County experiment is completed. Also he made it clear that it is the intention of the bureau to have these schools conducted by the local association officers and not by the bureau.

The question was asked, during the discussion, as to what type of man should be secured to assist in putting on the sales school. In answer to the suggestion that, where there is a local college or university, usually it will be possible to secure the services of one of the professors in the business department, C. W. Wanger, of Philadelphia, a director of the bureau, arose to advise against the use of that type of instructor, basing his remarks on experiences in Philadelphia where that course was followed for a time.

Peter King of Milwaukee had a constructive suggestion to offer. He pointed out that in his city the vocational school pays for the instructor in the accounting class, and he feels that wherever there are vocational schools it would be possible to make this arrangement in connection with the sales schools.

Outside Competition

As the last feature of the program on Monday, T. W. Merryman of Chicago read a paper on how to meet the competition of the chain store and the mail order house.

Mr. Merryman, it will be remembered, presented the idea of "certified plumbing" at the master plumber's national convention in Boston last year.

Commencing with a paraphrasing of Lincoln's Gettysburg address, he spoke of the "commercial war, which is being waged against the master plumber by these so-called 'direct to you' houses." He traced the progress of events during the time when new construction was at its height, and the following period when new work has fallen off. During that time, he indicated, the mail order people had been making inroads and had developed merchandising aggressively.

In 1920, he said, the latter sold less than 3 per cent of the enamel ware used in this country. In 1929 they sold 33 per cent of the enamel ware, an increase in sales of approximately 1,100 per cent. In 1929, said Mr. Merryman, the sales in the plumbing and heating department of one of the largest mail order houses amounted to fifteen million dollars. He then quoted from a recent news item indicating that this firm has set up a fund of five million dollars to finance home modernization in and around New York City. If successful there, the item read, the plan will be made available to owners of old residences all over the country.

He then referred to another company which advertises itself as the world's largest building material factory serving the home owner direct. He quoted from advertising of this firm, offering the home owner building materials. In all, Mr. Merryman cited the activities of five different organizations, each one of which is extending its efforts into the plumbing and heating field. One firm, he said, will set up a fund of $68,000,000, "in order to wrest control of home building from among the contractors by offering guaranteed homes through dealers and manufacturers who subscribe to the plan."

Joseph Fitts, Secretary, Heating and Piping Contractors National Association

Mr. Merryman also quoted from a speech of Hon. Clyde Kelly, of Pennsylvania, in which this member of the national House of Representatives indicated the need for the protection of the small independent merchant.

In concluding his speech, Mr. Merryman said: "If we are to stop this continuous growth of this ever-increasing menace; if we mean to free ourselves from its dominance, it is necessary for us to fight.

In the discussion which followed Mr. Merryman's paper, certified plumbing was discussed in some detail as one of the weapons by which the master plumber could hold his market, by identifying himself with the movement, designed to offer the home owner protection by certification and inspection.

At the close of the meeting, Mr. Frank, in the chair, said: "We have lost a great many members during the past year. We are not certain that it is not a healthy loss for the most part. But we are jealous of the membership we now have," and he added that after the next convention plans were afoot which would provide "direct communication with each member."

The Opening Session

The conference opened with President Drake in the chair. R. L. Spitzley of Detroit, Mich., vice-president of the Heating and Piping Contractors National Association, speaking for Walter Klie of Cleveland, president of the organization, welcomed the delegates. "These conferences," he said, "held yearly, give us food for thought for the coming year." Referring to the fact that there were fewer in attendance than last year, he said: "I think that the smaller the crowd the more detail you get," and with reference to the coming twelve months he offered this thought: "The worst day of 1931 will be the best day compared with 1930."

George W. Frank, Secretary, National Association of Master Plumbers

Mr. Drake was suffering from a severe sore throat and spoke only briefly to the delegates before calling on Joseph C. Fitts, secretary of the national heating body. "This is probably one of the most important conferences we have had in the last ten years," said Mr. Fitts. "After all, our members are going to judge us by whether or not we help them to make money, and this year they are more hungry than ever to make money." Mr. Fitts struck the keynote of the meeting when he referred to remodeling work: "The only thing we can do is to find new fields for our members to work in, and the work in modernization we have been pushing is the key to the situation. This year we must help our members to sell and if we do not do that we are going to fall far short of our purpose."

Rupert J. Weber, president of the Plumbing Contractors' Association of Chicago, extended a cordial greeting to the delegates. Referring to the necessity for associations, he said: "The association can only help create conditions under which the contractor can do business successfully. Your associations can be a helpful and educational influence in creating local conditions in which men may help themselves."

George Frank of Buffalo, secretary of the national plumbing group, added his words of welcome. "We in the national association fully realize," he said, "that the life of this association depends upon you gentlemen and for this reason we are giving to you this year possibly the most constructive administration that the national association has ever had. I hope that by the time of our next convention we will have demonstrated to the membership in general that we have fulfilled our promises."

At the request of Mr. Drake, Mr. Frank took the chair for the meeting and asked Mr. Flentje to say a few words. "I can say that I am leaving the Plumbing and Heating Industries Bureau," said Mr. Flentje, "with a great deal of regret, and I hope that I will be able to maintain my contacts with the people who have been

responsible in a large measure for whatever success I may have enjoyed."

Mr. Hildebrand spoke briefly: "In the course of my duties in carrying on the conferences," he said, "it has been a great inspiration the way the entire plumbing and heating industry has responded in coming out in large numbers to our meetings and by taking a real interest in doing that very necessary thing: Putting plumbing and heating in its rightful position in the picture."

Bureau Secured 66,000 Inches of Publicity

Norman J. Radder, publicity director for the bureau, followed Mr. Finney with a paper containing suggestions as to how the secretary can get local publicity for his association. First reporting on bureau publicity activities, Mr. Radder said that during 1930 daily newspapers all over the country printed 66,244 inches of favorable publicity about plumbing and radiator heating, this material coming from the bureau. The circulation of the papers in which these stories appeared totaled 227,873,000. Thirty-two magazines published bureau stories and the total circulation of the issues in which the articles appeared was 4,568,000.

Mr. Radder then went on to suggest to the secretaries that this proves that editors are willing to accept publicity of that kind. He pointed out the process by which acceptable stories may be built around association meetings. Anything the associations may be doing to relieve unemployment would have a news value. Floor plans and details of actual remodeling jobs would make first-class news, Mr. Radder says. He suggested the use of a local reporter to get the thing started, paying him a small sum to write one story a week about the activities of the association. If this was not possible, he urged the secretaries themselves by all means to keep in close touch with the local newspapers.

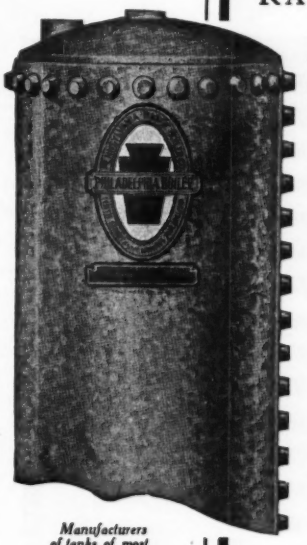
The discussion following Mr. Radder's talk was interesting, because it indicated the extent to which local attention had been drawn to the publicity. Mr. King said that the other trade secretaries in Milwaukee wanted to know just how his organization managed to get so much publicity in the daily papers. Mr. Drake said that it has been a wonder to the other associations of the building trade in his city, and that they are talking about the amount of publicity secured.

Mr. Hildebrand summed up the conference briefly at the close of the three-day meeting. "I feel we have had a constructive conference," he said. After running over the various subjects on the program he concluded: "As I see these conferences, they are not going to mean much to any one unless we take hold in a serious way and leave with the firm determination to go back to our associations and try to put into actual practice the ideas that have been presented. You have a serious responsibility resting on your shoulders. Your men are depending upon you to lead them in the right direction. That confidence they place in you deserves in return your whole-hearted effort towards helping them."

◆

At the awarding of certificates of craftsmanship and gold buttons recently to meritorious craftsmen on the building at 21 West street, New York City, Richard A. Wolff, vice president of the New York Building Congress and president of Wolff and Munier, Inc., heating and ventilating engineers of that city, presided.

PENNSYLVANIA
RANGE BOILERS



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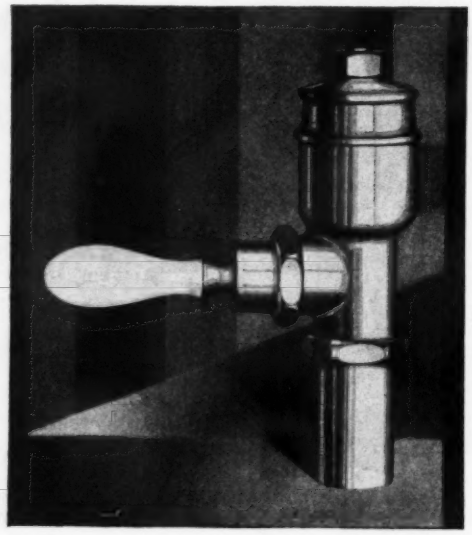
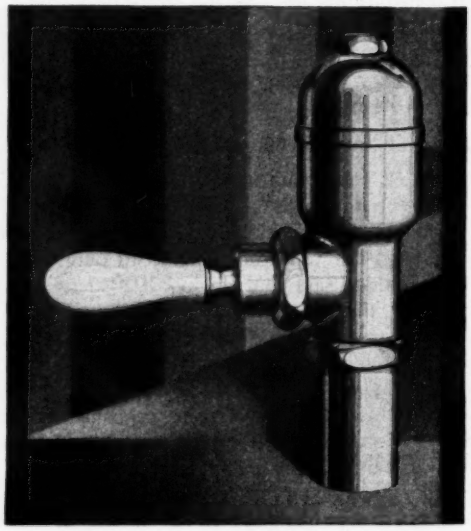


The Naval—a flush valve for ships—is made of special alloys and monel wearing parts to resist the action of salt water, corrosive water, sand and silt. A handsome, sturdy, dependable valve to meet the severe conditions afloat; also for localities supplied with corrosive or sandy water.



The Star—a flush valve for buildings of every type—combines genuine quality with unusual beauty. Its unique construction assures efficient operation even with muddy or dirty water. Its moderate price makes attractive appearance and unfailing performance available to any installation.

TWENTY-FIVE years devoted to the single task of making flush valves lie behind the Star and Naval valves. In these two remarkable valves you will find every requirement anticipated, every desirable feature provided. Note these advantages:

1. Regulation of the amount of flush for any bowl is secured without shutting off the water or disturbing the by-pass and requires no skill.

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MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

IN the majority of cases wholesalers devoted the past fortnight to inventory-taking and the auditing of their books, and it seems from most reports received that jobbers' volumes for 1930 were considerably below those for the year 1929. Scattered instances are heard, though, of 1930 receipts being either equal to or better than those for the year before, but such cases are of course the exception. While gross profits on the average suffered much the same as volume, it is said that in many cases the percentage of profit on the year's business was more satisfactory than in 1929.

Since our last review appeared price changes have been an-announced by manufacturers, affecting some of the major commodities. On January 10 a number of manufacturers announced reductions in their prices to wholesalers on certain types of cast iron, malleable and drainage fittings. These same manufacturers also lowered their prices to their distributors on certain types of valves. About the middle of this month new price sheets were issued by several pottery manufacturers, the new sheets carrying the announcement of higher prices to distributors. With the exception of the price changes mentioned above, the market maintained an even keel during the fortnightly period.

Jobbers' stocks are reported at a low level in most instances, and it is said that little purchasing for stock purposes has transpired since the completion of inventory. Contractors' requirements are generally light and wholesalers are able to take care of the current requirements of their customers without difficulty. Sources of supply are equipped to ship material on schedule, according to most reports.

Roughing-in goods such as soil pipe, wrought iron pipe, steel pipe and brass pipe were not needed by contractors during the two weeks in any large quantity, and the various types of fittings displayed much the same activity as the first mentioned items. Wholesalers' sales of enameled ware, pottery, plumbers' brass goods and the various other commodities falling under the classification of finishing materials reflected the lack of activity in the new construction field. Reports from the various jobbing centers indicate that numerous major building projects are now underway or about to be started and it is felt that many of these will soon reach the stage where plumbing and heating materials will be required.

An encouraging analysis of the business situation is found in the current issue of The Business Week, which says in part: "The first two weeks of the year have made a good showing. Steel production has come back from the holiday low point at about the usual speed, with a fairly large backlog of forward business. Building contracts continue well sustained. Car loadings of merchandise are following their normal trend. Currency in circulation is no longer being disturbed by abnormal factors; check payments at the beginning of the year were larger than usual; and the volume of commercial loans is holding above seasonal expectations. Our index has risen fairly strongly from its bottom at around 77 per cent of normal to nearly 80 per cent."

NEW ENGLAND

Building Activities Move Upward

DURING the fortnight covered by this report there obtained a somewhat more spirited activity in building circles. Master plumbers and heating contractors have been occupied better than heretofore in preparing estimates and in endeavoring to close contracts for some of the major operations now extant. Bids submitted included the Boston post office, The Professional Arts building, a warehousing plant for the Western Electric Company and a number of other good-sized developments throughout New England. There still exists a dearth of speculative residential construction, but there is as good a demand as might be expected at this season of the year for better types of homes. Realty men believe that the trend has already pointed definitely upward and that activities of major proportions will assist in a large way the progression of smaller developments.

The majority of wholesalers in this area have finished inventory work and have completed auditing of their books. Averages of business consummated during the 1930 period showed considerable depreciation over 1929 records, there being only isolated cases wherein jobbers reported their last year receipts as better or even equal to those of 1929 and 1928. Profit margins showed up as well as during former years, only gross profits were not so extensive. It is said that credits were watched more closely and collections were consequently effected at more regular intervals, with a somewhat decreased number of failures among master plumbers and heating contractors attending.

While jobbers at the close of the year showed light inventory of most classes of material, there has been displayed since that time but little tendency to do much bolstering of stocks. Soil pipe requirements are presently not even as good as they were during January of last year, which, on the whole, were light during that period. Contractors' orders for pipe and fittings are not numerous, although there continues a fairly good call for heating equipment, including house heating boilers and radiators and steel pipe and fittings. Wholesalers' dispositions of finishing products, such as enameled ware, pottery, range boilers and plumbers' brass goods, reflect the inactivity which is seasonal in new construction. Better movements of these commodities are anticipated during the several coming months when some of the major developments now under way reach the point where installations of finishing commodities are needed.

On January 10 a number of manufacturers announced reductions in their prices to wholesalers on certain types of cast iron, malleable and drainage fittings, and also on brass valves. About the middle of the month new sheets were issued by several potters, carrying higher prices to wholesalers. Prices on the various other major commodities have not been changed.

CENTRAL WEST

Demand Is Light

THE past fortnight was utilized by wholesalers generally in finishing up the odds and ends of their yearly inventory-taking and in other ways preparing for the year's business ahead. With new construction work holding at just about the same level as has prevailed for the past several months, the volume of plumbing and heating material that moved into consumption during the two week period just passed was, in the aggregate, small.

Building permits issued in the city of Chicago during the week ending January 17 amounted to $1,484,800, as compared with $775,200 for the corresponding week of last year. There was little difference, however, in the number of permits issued. The weekly total for this year resulted from 30 permits, while in the corresponding week of last year 29 permits were issued in the city.

Steel plant operations in the Youngstown district will be increased 4 per cent to 48 per cent of capacity this week, Dow, Jones & Co. estimate. Youngstown Sheet & Tube Co. will increase activities 5 per cent to 50 per cent, the improvement being largely due to the company's pipe bookings. Carnegie and Republic operations also will increase, it is reported. It has been announced by the Southern Railway system that contracts for 35,100 tons of steel rails for delivery during February, March and April have been let. It was estimated the order would cost $1,500,000. One of the large steel companies has reported receipt of an order for 80,000 tons of seamless pipe. New bond financing during the week ending January 17, aggregating $257,001,000, was the heaviest for any week in exactly one year. As a matter of fact, it is nearly two months since a weekly total of new bond offerings amounted to as much as $100,000,000. The above statistics are advanced as an indication of current activity in general business and from that standpoint are worthy of consideration.

Wholesalers of plumbing and heating supplies interviewed during the past fortnight displayed, for the most part, little interest in placing orders with their sources of supply other than for quantities needed to maintain safe working stocks. The recent inventory taking indicated that stocks of most jobbers were smaller at the first of this year than at the corresponding period of the past several years.

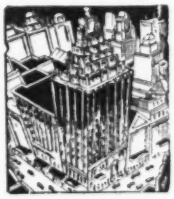
Since our last review appeared, price changes have been announced by manufacturers, affecting several of the major commodities. About the middle of this month new price sheets were issued by several manufacturers of pottery, which carried the announcement of higher prices to wholesalers. On January 10 a number of manufacturers announced reductions in their prices to wholesalers on certain types of cast iron, malleable and drainage fittings. These same manufacturers also lowered their prices to jobbers on certain types of valves. Except for the

changes mentioned above, the market maintained an even keel in the matter of prices during the past fortnight.

Soil pipe manufacturers say that demand from wholesalers continues mainly for small quantities to fill-in stocks, and the same appears to be the situation where wholesalers' purchases of steel pipe and wrought iron pipe are concerned.

Enameled ware shipments were reported somewhat improved by producers, due mainly to the release of material ordered at the time of the price advance last month. Reports indicate that the advance in pottery prices referred to above resulted in jobbers taking a more keen interest in their present holdings of this commodity, and also in their future requirements.

The movement of boilers and radiators and other heating materials held at a moderate level during the period, the call for repair parts accounting for a good part of the activity. Range boilers and plumbers' brass goods moved moderately.



NEW YORK

Post-Inventory Needs Sustain Volume

IN addition to the usual seasonal shipments experienced January first, representative manufacturers report a continuing secondary demand which has asserted itself thus far this month. Materials for which there was immediate need were requisitioned in December for January first shipment so as to avoid inventory. On the completion of stock-taking many wholesalers found gaps in the supply of staples which they found it to advantage to fill with quantity orders. Such secondary business is stated by manufacturers to be of larger proportions this year than in 1930, owing to the distributors' policy of running stocks down to the bone during December.

Requirements of contractors are steady, demand centering largely on materials for repair and replacement work, it is said. Utility and railroad requirements have given considerable impetus to current buying and municipal work, especially in school buildings, is of large proportions. However, contracts let for private enterprises remain lower than for the corresponding period a year ago, with the exception of Bronx County, where some surprisingly favorable statistics have appeared. Inasmuch as the Bronx has for some years been the most rapidly growing section of the metropolitan area, some interest in these figures has been aroused in trade circles as possibly marking a change in the trend which will have a bearing on the industry not only in that borough, but for the entire East. Should subsequent figures denote further improvement, an analysis of them will be made later, giving the sources of building by groups, motivation, and an interpretation by resident wholesalers who have been conversant with local conditions there for many years. In lieu of further information, most interests interviewed were reluctant to comment, although admitting that the figures to date are not without significance.

During the fortnight a number of manufacturers announced reductions in their prices to wholesalers on certain types of fittings and valves. About the middle of the month several potters issued new sheets which incorporated advances in their prices to wholesalers.

In the main, sentiment among all interests seems to be that commodities in general are about at their low, if indeed several of them have not passed the nadir,—such as copper, which from an all time low of 9½c advanced to 12c, reacted to 10¼c and is now 10½. Several copper-bearing items are cited which are not now obtainable within 5 per cent of the extreme lows. There is a growing tendency on the part of manufacturers and wholesalers alike not to force buying, as it is felt that such a policy is conducive to more satisfactory results, both from the point of view of profits and credits.

Export trade remains in an unsatisfactory condition, according to most reports, both as regards shipments and credits,—Cuba being a particular sufferer in the last respect. However, the advance of 20 per cent in the price of raw sugar during the past month will enhance Cuban purchasing power in practically the same ratio, it is said, and furthermore restore confidence. Cocoa and coffee have likewise advanced, thereby benefiting several South American countries. It is felt by many export firms interviewed that the problem at the moment is not that of how serious conditions are,—they are admittedly bad—but rather whether the time is not at hand when favorable factors are beginning to outnumber the untavorable. Once such conditions make their appearance, it is felt that one element will sustain another with a gradual return to normal conditions ensuing. If, after ten years of steadily declining commodity prices, during which it was exceedingly difficult for agriculture and enterprises of any kind not of a monopolistic nature to make money, we have at last returned to a gold basis, then it is felt that rising quotations will outweigh other considerations, and what now seem to be insurmountable obstacles of finance and tariffs will be overcome in due course as they always have in the past. Such opinion is also applied to domestic problems by many. The volume of new contracts let in the metropolitan area during the fortnight compares relatively well with that of the corresponding period a year ago.

MIDDLE ATLANTIC

Inventory Buying Is Apparent

WHILE no sharp upturn in activity has taken place among plumbing and heating contractors during the past two weeks, indications would seem to point to improvement in the industry as compared to the low levels of the last months of 1930. Wholesalers report increased activity among the architects solicited by them, which, quoting the wholesalers, means

increased demands from the contractors within a few months' time, at least to a seasonal extent, during the early Spring months. A fairly satisfactory amount of figuring is being done by jobbers and it is reasonably felt that many of these quotations will eventually become commitments. Several large projects contemplated and started late last year in this section will reach the stage requiring plumbing and heating materials in the near future, and a comparatively large number of commercial and public building projects are now on architects' boards. While little of any consequence is in sight for immediate improvement in residential construction, many interviewed are of the opinion that the next eleven months will witness at least a 15 per cent increase in this market.

The fortnight just passed brought forth only moderate demands from contractors, and the turnover of jobbers' materials was largely confined to the requirements for repair work on the part of the trade. Most jobbers were still occupied with stock taking and reports at this time indicate that materials in possession of dealers is materially less than in former years in the corresponding weeks.

Manufacturers' representatives say that they have received a sizeable amount of stock orders during the past fortnight. This is attributed to the realization of the low condition of their inventory by jobbers and the anticipation of early Spring business.

On January 10 a number of manufacturers announced reductions in their prices to wholesalers on certain types of cast iron, malleable and drainage fittings, and also on certain valves. About the middle of the month new price sheets were issued by several potters, which advanced prices to jobbers.

A large jobbing interest located in the upper part of Pennsylvania and having a number of branches in smaller towns reports that business for 1930 as compared with 1929, covering all branches, shows a decline of about thirty per cent. This report further shows that business for December, 1930, declined approximately 35 per cent in comparison with the same month of 1929. This wholesale firm also says that its volume of business consisted largely of replacement work throughout the year.

Shipments of all commodities during the fortnight were comparatively heavy, it is reported, as many of the orders placed last year were allowed to hang over into this year before being released. Representatives of wrought iron pipe and steel pipe mills report an increase in orders received during the fortnight, mainly for wholesalers' stock, and most mill representatives feel that the month will show a good total. Enameled ware producers have felt an increase in orders since the last price advance, and likewise pottery producers report an upturn in commitments to replenish dealers' retarded inventories. A pickup has been noted in heating volumes by boiler and radiator salesmen since the advent of 1931, this material largely going into replacement work.

The movement of brass pipe, range boilers, and plumbers' brass goods has shown little variation since the first of the year. Prices are unchanged in all items except those previously mentioned, and deliveries of materials are of a satisfactory nature, from all sources of supply.

Credit conditions are said to be improving and are on a satisfactory

THE STOCK MARKET

Range for Week Ending January 17, 1931†

Par Value	1930-31 High	1930-31 Low		*	Weekly High	Weekly Low	Weekly Close
NP	156⅜	87½	Air Reduction Sales Co	A	99½	92¾	99⅜
NP	39¾	15	American Rad. & Stand. San. Corp	A	18⅛	16¾	16⅞
25	100¾	25⅝	American Rolling Mills Co	A	31⅞	25⅝	29½
50	81½	25	Anaconda Copper Mining Co	A	33¼	30⅛	32⅝
NP	46½	21	Bastian-Blessing Co	C	22	21¾	21¾
NP	110¼	47⅜	Bethlehem Steel Co., com	A	53	47¾	48⅝
100	134	112¾	Behtlehem Steel Co., pfd	A	118¼	116	118¼
NP	30⅝	10	Brunswick-Balke-Collender Co	A	12½	11	11
NP	112⅜	33⅛	A. M. Byers Co., com	A & E	34⅜	40⅜	41
100	114	106	A. M. Byers Co., pfd	A & E	106	106	106
50	1½	⅝	Chicago Nipple Mfg. Co., "A"	B	1	1	1
50	1½	1	Chicago Nipple Mfg. Co., "B"	B	1	1	1
25	45	39¾	Crane Co., com	C	40	40	40
100	119½	113	Crane Co., pfd	C	117½	117½	117½
20	21	3⅞	Eagle-Picher Lead Co	H	5¼	4⅞	5⅛
NP	39¼	3½	Fairbanks Co., pfd	A	6	5½	6
NP	50½	19	Fairbanks, Morse & Co., com	A	23	22½	22½
100	110½	102	Fairbanks, Morse & Co., pfd	A	104½	104	104½
NP	20	6	Greenfield Tap & Die Corp	B	6	6	6
NP	29	14⅝	Iron Fireman Mfg. Co	C	17¼	15½	16
NP	148⅜	48¾	Johns-Manville Corp., com	A	62⅜	58	59
100	123⅜	117	Johns-Manville Corp., pfd	A	122⅛	120⅛	120½
100	123½	118	Jones & Laughlin, pfd	A & E	120½	120	120½
NP	76¾	37	Minneapolis-Honeywell Reg. Co., com	A	45	45	45
NP	73	32¾	Modine Mfg. Co	B & C	36	36	36
NP	34	14⅛	Motor Wheel Corp	A	15½	15¼	15½
100	189½	114	National Lead Co., com	A	127½	127½	127½
100	144	135	National Lead Co., pfd. "A"	A	140	138	140
100	120	116	National Lead Co., pfd. "B"	A	120	116⅝	116⅝
NP	4½	½	National Radiator Corp., com	A	1	⅝	1
NP	11	1¾	National Radiator Corp., pfd	A	2¼	2	2
5	31⅜	11	Herman Nelson Corp	B	11½	11	11
NP	76	59⅝	Ohio Brass Co. "B"	B & G	64	61¾	64
NP	30	5¼	Revere Copper & Brass, Inc., com	A	9⅞	9⅞	9⅞
NP	104	81	Revere Copper & Brass, Inc., "A"	A	83½	81	81
NP	⅞	¾	Richmond Radiator Co., com	B	¾	¾	¾
NP	12	3½	Richmond Radiator Co., pfd	B	3½	3½	3½
NP	33	21	Ruud Mfg. Co	C	24	23¼	24
NP	37¾	19⅞	Spang, Chalfant & Co., com	A	25	25	25
100	96	92	Spang, Chalfant & Co., pfd	A	93½	93½	93½
NP	32½	14½	Time-O-Stat Controls Co. "A"	C	22	18	22
NP	106⅜	52½	Union Carbide & Carbon Corp	A	59¼	56	56⅜
20	38⅛	18½	U. S. Cast Iron P. & F. Co., com	A	29¼	28	28⅝
NP	21	15⅝	U. S. Cast Iron P. & F. Co., 1st pfd	A	18¾	18¾	18¾
NP	21¼	18½	U. S. Cast Iron P. & F. Co., 2nd pfd	A	21⅛	21⅛	21⅛
NP	55	20	U. S. Radiator Corp., com	B & D	20	20	20
100	100	100	U. S. Radiator Corp., pfd	D	100	100	100
NP	35	11	U. S. Rubber Co., com	A	12⅞	11⅞	12
100	63⅞	19½	U. S. Rubber Co., pfd	A	25	23	23¾
100	198¾	134⅜	U. S. Steel Corp., com	A	143⅝	138⅞	139⅛
100	151¼	140	U. S. Steel Corp., pfd	A	146¾	146	146¾
NP	9	2	Universal Pipe & Radiator Co	A	3½	2⅝	2⅝
NP	42	10½	Walworth Co	A	14	12⅝	13½
NP	19½	5½	Wayne Co., com	B & C	6½	6½	6½
NP	39	17	Wayne Co., pfd	B & C	19½	19½	19½
100	110	93	Wheeling Steel Corp., com	B	110	108	110
100	135½	131½	Wheeling Steel Corp., pfd. "A"	B	133	133	133
NP	23¾	16	Williams Oil-O-Matic Htg. Corp	C	16	16	16
NP	150¼	69½	Youngstown Sheet & Tube Co	A	70½	70	70¼

*Where listed

A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Pittsburgh Stock Exchange
F—St. Louis Stock Exchange
G—Cleveland Stock Exchange
H—Cincinnati Stock Exchange

†If there is no trading during the current week, range represents last week recorded.

basis from the manufacturer and wholesaler viewpoint, due to the pursuance of a more stringent policy and a lessened turnover during the yearly period just closed.

Contracts let for new building in this section for the 50th week totaled $7,614,400, according to the F. W. Dodge Corp., of which $5,479,600 was awarded for non-residential construction. Contracts awarded for the first week from January 2nd to 9th totaled $5,240,900.

The Builders' Guide of Philadelphia in commenting on building figures gives the following totals: The total estimated cost of all buildings, alterations and repairs for which permits were issued in the city of Philadelphia during 1930 was $55,267,390. The total cost of all building during 1929 was estimated at $106,228,915.

It is quite apparent that residential construction suffered the greatest percentage of loss in 1930 from $18,783,685 to $5,752,450, while tenement houses dropped from $14,092,000 to $2,129,000.

Record, construction, engineering and building contracts awarded last year in the sixteen Southern States had a total valuation of $921,715,000, and this mark exceeded the 1929 total by $141,000,000. It is further pointed out that contemplated construction projects announced in these 16 states in the past three months amounted to $301,000,000.

The Manufacturers' Record reported as shown in the table below on construction in the sixteen Southern States for December, 1930. Proposed construction is also shown in the table.

Jobbers have sufficient stocks on hand and are able to take care of the immediate requirements of the trade without delay. Credit conditions are reported to be in fairly good shape.

About the middle of this month new price sheets were issued by several potters, advancing prices to wholesalers. On January 10 a number of manufacturers announced reductions in their prices to wholesalers on certain types of cast iron, malleable and drainage fittings, and also on certain valves.

	Contracts Awarded	Proposed
Apartment houses and hotels	$4,150,000	$2,083,000
Association and fraternal	458,000	50,000
Bank and office buildings	3,610,500	770,000
Church Buildings	396,000	3,665,000
City, county, government and state projects	9,183,000	8,954,000
Dwellings	2,704,000	1,867,500
Miscellaneous	15,109,500	14,507,500
Roads, paving and bridges	19,914,500	39,232,000
School buildings	3,930,500	7,864,000
Sewers, drainage and water works	4,792,000	12,792,000
Store buildings	602,000	928,500
Total	$64,850,000	$92,713,500

SOUTHEAST

Early Improvement Anticipated

WITH the passing of the inventory season, wholesalers are turning their attention to the condition of their stocks on hand to determine to what extent stock replacements will be needed to take care of the trade's near future needs. According to most reports, jobbers are awaiting business developments before making any sizeable increase in factory commitments, and at the present writing stock replacements are only of a moderate nature. Reports indicate that at the present time jobbers' stocks are at a low point, and it is the opinion of many sellers that an improvement in demand will be quickly reflected at manufacturing sources.

Jobbers interviewed stated that business was holding its own, with little new activity to report. Contractors are only fairly well engaged and the bulk of their work is in repair contracts. Heating materials are holding at a moderately good rate, while range boiler sales were reported as fair. Wholesalers are reported coming into the market more freely for enameled ware, with colored ware being stressed for the larger residential installation. Soil pipe, steel pipe and wrought iron pipe were not in such good demand, and, as a whole, it can be said that the market was rather inactive for the past two-week period.

The most encouraging feature of the trade is the anticipated spring construction revival. Most architects and engineers interviewed in this territory are working on construction projects expected to be released for bidding in the spring. Of course, some are of a speculative nature, but the list consists mainly of a number of large construction projects scheduled for this territory which will be of vital interest to the plumbing and heating trade.

According to The Manufacturers'

PACIFIC COAST

Outlook Seems Better

WHILE conditions vary a great deal in the different jobbings centers on the Pacific Coast still there appears to be a little better feeling as to the future outlook, based somewhat on the amount of building permits which were issued during December, 1930, and the past two weeks of this month, and the amount of public work which is coming to the fore more and more.

Greater interest is being taken by many of the plumbing and heating trade in the great possibilities of remodeling work both on a cash basis and the time payment plan. In some localities some of the dealers are concentrating all of their efforts on this class of work with excellent results. The general policy of the trade as a whole seems to be to purchase material as the need for it arises and up to the present time there has been very little forward buying in evidence.

During the past week most manu-

facturers of pottery on the Coast announced an advance in price on staple closet combinations and staple pattern lavatories which prices are being reflected in the jobbers' quotations to the trade and have resulted in orders for this class of material being placed which were being withheld until the material was needed.

Manufacturers of fittings announced a reduction during the week on cast iron screwed and malleable fittings and drainage fittings as well on certain types of valves. This reduction is being reflected in most jobbers' quotations to the trade. The demand for these commodities, however, has been very little if any affected by the reduction as they are still moving in moderate quantities from jobbers' stocks.

Soil pipe and fittings, on which jobbers' prices to the trade vary in the different jobbing centers, are moving in moderate quantities with little change in demand noted during the past fortnight.

The Metal Market

	Jan. 20	Average Nov., 1930	Average Sept., 1930	Average 1929
PIG IRON—				
No. 2 foundry, Chicago	$17.50	$17.50	$17.50	$20.00
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.65c	1.60c	1.60c	1.93c
Blue annealed sheets, No. 13, Pittsburgh, per lb.	2.05c	2.05c	2.10c	2.17c
Black sheets, No. 24, Pittsburgh, per lb.	2.35c	2.35c	2.40c	2.85c
Galvanized sheets, No. 24, Pittsburgh, per lb.	2.90c	2.95c	3.00c	3.57c
TIN—				
Straits tin (spot)	26⅛c			
LEAD—				
E. St. Louis	4.55c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	12 c	Copper, light	6½c
Block tin pipe	20 c	Heavy copper and wire	7 c
Brass, light	3½c	Zinc	1½c
Brass, heavy yellow	4½c	Lead, heavy	3¼c
No. 1 comp. red brass	7½c	Solder joints (close cut)	5 c
Heavy crucible copper	8½c		

NOTE: Prices are those quoted on Tuesday of this week.

Steel and wrought iron pipe show no change in demand or price. Stock of these commodities are ample in all distributing centers.

Heating material such as radiation and boilers, and primarily gas fired boilers, are coming to the fore especially with the advent of natural gas. The demand for these materials appears to be increasing.

Oil Burner Industry Shows Gain for 1930

By WALTER F. TRANT, President, American Oil Burner Association

IF ANY proof were needed that the buying power of the American home owner is still strong in spite of the depression of the past 15 months, it would seem to be provided in the fact that the oil heating industry has just closed the most active year in its history. Since no industry more closely reflects the purchasing power of the people who own their own homes, this record must stand as a fair indication of the strength and soundness of this solid class of citizens.

Had the sales of domestic oil burners only equalled those of 1929, it would have been remarkable in view of the prevailing conditions and if they had fallen behind the 1929 total it would not have been surprising. But the fact that sales in 1930 were approximately 2 per cent ahead of the previous year is a direct challenge to those gloomier business prophets who think and speak only in terms of a downward trend.

At the end of 1929 statisticians predicted that by the end of the current year there would be 650,000 domestic oil burners installed in American homes. This estimate was arrived at after the prevailing depression was more than three months old and after many prominent industrialists had predicted an early upturn during the spring months. Consequently the estimate included an allowance for improved conditions. Actually, based on authentic information there will be slightly more than 654,000 burners in use by the end of December, 1930. The sales for the year will be a little over 125,000 burners.

These 125,000 burners represent a total manufacturers' gross of more than $20,000,000. With the accessories and instaliation costs added they represent a consumer outlay of approximately $69,000,000 which is less than the 1929 dollar volume. This is due to price adjustments made during the year. It is interesting to note that while the vast bulk of this business was centered in the domestic market, the foreign demand for American burners was greater this year than ever before and exports took a decided jump.

This increased activity within the industry constitutes an achievement even greater than the figures indicate. The sales activity involved in the distribution of these 125,000 burners was much greater in proportion than the two per cent increase in total sales would indicate, due in part to the general retrenchment tendencies and partly to competition both within and without the industry. It also should be borne in mind that this total was reached despite the marked slump in building activities which usually exerts some influence on the sale of oil burners.

For the first nine months of 1930 activity was at a peak and the industry as a whole was approximately 11 per cent ahead of the corresponding period in 1929. During the last three months sales fell off rather sharply, however, due mainly to the seasonal decline in trade. Impetus gained during the peak months was still sufficient to carry through the year to a net gain.

An encouraging factor within the industry is the fact that there is no

overproduction. There is a thin margin between demand and supply and the manufacturers are not loaded with stock. The year-end inventories are uniformly low, indicating that a healthy condition prevails among the manufacturers and dealers. Also there is a distinct feeling of confidence among the industry's leaders.

It is felt that the oil heating industry has passed through the most crucial year in its history with flying colors. The sound judgment of the leaders has been vindicated by the progress made in spite of the depression and the feeling is general that 1931 will prove to be an even more fruitful year.

Realty Upturn Is Near, Survey Shows

PROSPERITY, long-heralded as being just around the corner, may not be so far distant from the owner of real estate, it is indicated in the sixteenth semi-annual survey of the National Association of Real Estate Boards, just made public. This survey presents confidential data from the real estate boards in 349 cities throughout the United States and Canada as to price movements, rent movements, building supply, money supply for real estate development, interest rate trends, subdivision activity and general real estate activity.

"The findings, while they confirm the observations made from time to time during the year by the association to the National Business Survey Conference and to President Hoover's Conference on Home Building and Home Ownership, bring to light further trends of pronounced general interest in relation to the general outlook for the year ahead," says a statement from the association.

Find Stable Prices

"It may be said that the reports, registering on the one hand the degree to which real estate activity has been affected by the general indisposition of business to enter into any major extensions, show also that in almost one-fourth of the cities prices for real estate have remained stable, notwithstanding the decline which the year brought in commodity prices. The survey thus gives some measure of the normal disposition of values in real estate to outride a period of depressed demand."

One of the outstanding disclosures is the fact that money for real estate development appears to be more readily available in the larger cities. In general the cities of more than 500,000 population show in the mortgage money market a predominance of capital seeking investment. In cities of a smaller size the proportion showing this predominance decreases, and in cities of less than 25,000 population slightly more than half report a predominance of loans seeking capital.

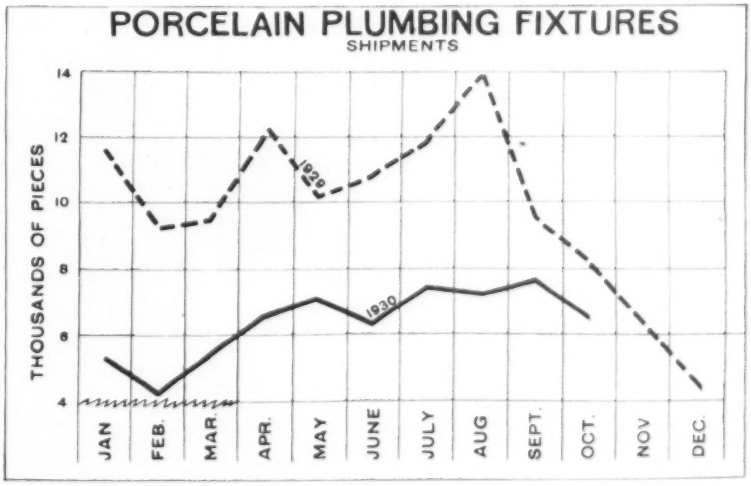
Report Rising Rates

"An apparent anomaly presents itself in the showing of the survey in regard to financing costs for real estate," the statement continues. "While the general disposition of interest rates is downward, rates for mortgage investment in 76 per cent of the cities reporting are just where they were a year ago, and more cities report rising than report falling rates. Falling rates are reported by twice as many cities as report rising rates in all groups above the 200,000 population line."

A normal supply of single-family dwellings is reported by 74 per cent of the cities, and of the remainder the larger number report an undersupply. In the rental situation, however, apartment rents appear to have reached a more stabilized condition than have rents for the single-family dwellings. Demand for business property is indicated as most seriously affected by the adverse business conditions during the past year, and outlying properties of this type have suffered more than those in the central business districts.

Market Activity Varied

In reference to the general market, the survey states that while the total figures for the United States and Canada report the same activity as a year ago in 28 per cent of the cities, more activity in 14 per cent and less activity in 58 per cent, the various sections show marked variations from these percentages. The market was reported more active in 49 per cent of the cities in the South Atlantic section and in 30 per cent of the cities in the mountain section, while less activity was reported by 75 per cent of the cities in the east north central section, 68 per cent in the west south central section, 73 per cent in the east south central and



The above chart shows shipments of solid porcelain plumbing fixtures, as reported to the bureau of the census by 9 manufacturers, comprising the entire industry for the year 1929 and for the first 10 months of this year. Shipments for the first 10 months of 1930 totaled 80,720 pieces, as compared with 127,686 pieces for the corresponding period of 1929.

83 per cent in Canadian territory.

In the United States and Canada as a whole 23 per cent of the cities reported that selling prices were the same as they were a year ago, 1 per cent reported higher prices, and 76 per cent reported lower prices. Attention is called to the fact that the figures report selling prices, a large percentage of which under present conditions represents forced sales.

"Had the questionnaire called for a report on changes in real estate values rather than prices," it is stated, "the percentage of cities reporting values the same as a year ago would undoubtedly have been much greater."

Residential Situation Healthy

Referring to the building situation, the survey says that a normal supply of single-family dwellings was reported in 74 per cent of all cities reporting, while 14 per cent reported a shortage and 12 per cent an oversupply. In apartments 67 per cent of the cities reported a normal supply, while 18 per cent reported a shortage and 15 per cent an oversupply. On the whole, it is stated, the residential building situation appears healthier than a year ago. In business property 64 per cent of the cities reported a normal supply, while 33 per cent reported an oversupply and only 3 per cent a shortage.

The outstanding feature in residential rents was the marked downward movement in single-family and two-family dwellings, stationary rents being reported in 39 per cent of the cities, lower rents in 56 per cent, and higher rents in 5 per cent of the single-family homes. Rentals in business properties indicate a greater percentage of decline in outlying business properties than in centrally located properties.

Capital Seeks Outlet

Rentals in central business districts were reported stationary in 50 per cent of the cities and lower in 46 per cent, while in outlying sections rentals were reported the same in 41 per cent and lower in 57 per cent of the cities. Office rentals on centrally located buildings were reported the same in 68 per cent of the cities and lower in 31 per cent, and in outlying office buildings were said to be the same in 58 per cent and lower in 42 per cent.

The survey shows that in the subdivision market 31 per cent of the cities report the same activity as compared with a year ago, whereas 67 per cent report less activity and 2 per cent indicate an increase.

Of the cities covered by the survey 26 per cent reported that in the mortgage money market capital is seeking loans, 34 per cent reported an equilibrium between the supply of capital and the demand for loans, and 40 per cent reported desirable loans available in excess of the supply of capital. Interest rates on first mortgage investments indicated a high degree of stability, with 76 per cent of the cities reporting steady interest rates, 14 per cent rising rates, and 10 per cent falling rates.

Many Loans Are Being Made to Aid Modernization of Old Residences

WITH the average home modernizing loan made in a recent month by New York's largest building and loan association at $1,080, home remodeling is playing an increasingly important part in stabilizing the real estate money market as well as the labor market, according to George A. Martin, president of the Railroad Co-operative Building and Loan Association.

Indicating, in his opinion, a trend which in time will build its own mountain of prosperity, Mr. Martin announced that a goodly part of the $517,000 loaned by his association during the month was for modernizing purposes. Coupled with this fact, Mr. Martin points out that over 20 per cent of the total sum (or $103,800) is being utilized for winter home building, another labor stabilizing activity previously avoided by builders.

"Public response to the campaigns inducing home modernizing which have been fostered by President Hoover as well as by many individual corporations and financing institutions is now beginning to play its part in stabilizing the real estate money market," Mr. Martin said. "The average modernizing loan of $1,080 made by our association in one month, if reproduced by every householder in this country, would induce more prosperity, utilize more loose funds, occupy more laboring men than the country could well supply. Small undertakings of this character multiplied many times are the grains of sand which build the mountain of prosperity.

Dr. Gilbreth at Work

"The most recent government sanction of home modernization as an employment stabilization factor is seen in the appointment of Dr. Lillian M. Gilbreth of Montclair, N. J., consulting industrial engineer, on the staff of the President's Emergency Committee for Unemployment. Dr. Gilbreth is urging each housewife to undertake home renovation work—and to do it now.

"Although the total of $27,000 to twenty-five home modernizers which was released in one month is rather small when compared with the total of $517,000 released during the month, it is nevertheless an indication of a healthy trend toward bringing the old home up to date, thereby giving work and increasing sales of building materials.

"Dreary autumn days have previously been the signal for a complete lapse of home building activity, thus throwing thousands of workmen into idleness. But the home builder is waking up to the fact that winter building is safe.

"These modernizing loans show distribution of work and wages among numerous trades and various building materials. Electricians, plumbers, masons, steamfitters, carpenters, tinsmiths, tilers, were all included among the workers employed.

"Preparing for comfort against the blasts of hoary winter occupied considerable of the home modernizers' money, for storm sash, new heating plants, extra radiators, roof insulation, and porch enclosures are principals among the jobs undertaken.

South Dakota Master Plumbers in Annual Convention Make Several Important Decisions

AMONG the outstanding features of the eleventh annual convention of the South Dakota Retail Plumbers' Association were thorough deliberations upon the advisability of establishing a permanent office of the National Association of Master Plumbers at Washington, D. C., plans for strengthening the South Dakota State Association and for supporting the Plumbing and Heating Institute's activities.

This convention was held Wednesday and Thursday, January 7 and 8, at the Lincoln Hotel in Watertown, S. Dak., with a good attendance.

Owing to the fact that illness prevented President Anthony Traut of Rapid City from attending the convention, the task of presiding at the various sessions was accomplished by Vice President C. Emil Carlson.

Officers Elected

The election of officers for the ensuing year resulted as follows: President, F. M. McCarthy, of Mitchell; vice president, A. F. Luck, Watertown; secretary and treasurer, Clifford F. Smith, Sioux Falls. Directors: H. M. Bennett, of Clark; George Hunt, Huron; John Geise, Mitchell; Earl Traut, Rapid City, and C. Emil Carlson, Sioux Falls.

It was decided that the next annual convention is to be held at Mitchell, S. Dak.

The Question About a Permanent Office

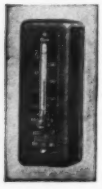
The question of establishing a permanent office at Washington, D. C., was discussed, and it was the opinion of those present that the opening of such an office at Washington by the National Association of Master Plumbers would be a step forward, that the contacts to be made there for the advancement of the industry are necessary and in line with present day business standards. A motion was passed in favor of the opening and maintaining of such an office for and by the National Association.

To Strengthen Association Activities

Means and ways of strengthening the association and bettering the industry were discussed. It was decided to inaugurate a campaign for new members by trying to organize local associations in all the larger cities and using them as central or zone headquarters to contact new members in the surrounding territory.

It is believed that such a movement will not only help the state, but will also do its share in strengthening the

President-Elect F. M. McCarthy, of Mitchell, S. Dak., at the left.—Below: National Director Fred A. Beier, St. Paul, Minn.; Secretary and Treasurer Clifford F. Smith, Sioux Falls, S. Dak., and Vice President C. Emil Carlson, Sioux Falls, who presided at the convention



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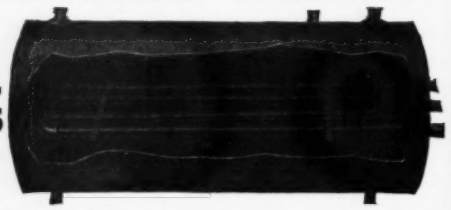

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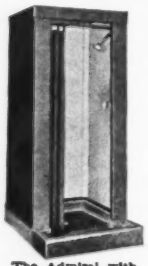

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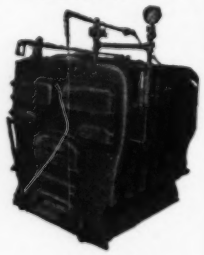

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National Association, that the local association will be able to put on merchandising campaigns that will be beneficial to the whole industry by making better merchandisers of the master plumbers, and in that way make a better outlet for the manufacturer's and jobber's products.

There is but one local association in the state and that at Sioux Falls, and the Sioux Falls Association is not affiliated with the State Association.

P. & H. Industries Bureau's Regional Management Plays Endorsed

The regional management plays sponsored by the Plumbing and Heating Industries Bureau, under the direction of Joseph Hildebrand, were endorsed as being an excellent and constructive educational feature. This endorsement was made on account of the good results of one of the first regional management plays shown in Sioux Falls, last September.

National Association Represented by Director Fred Beier and Secretary Clifford Smith

Fred Beier, of St. Paul, a director of the National Association, addressed the meeting Thursday morning on the activities of the National Association of Master

Paul Sherburne, of Cochran-Sargent Co., Sioux Falls, S. Dak.; J. McDonald, of A. Y. McDonald Mfg. Co., Minneapolis, Minn., and Ray Hodgson, manager of Crane Co.'s branch at Sioux Falls, S. Dak.

Plumbers and gave a detailed report of the National Convention at Boston.

Clifford Smith talked on the activities and plans of the National Apprenticeship Committee, of which he is a member.

Thursday afternoon was devoted to round table discussion and the election of officers, with the result noted at the beginning of this report.

Anthony Traut, president of the association, was unable to be present on account of illness. He was represented by his son, Earl Traut, who motored from

Rapid City, accompanied by Peter Melgrin, to Watertown to attend the convention.

Supplymen in Attendance

The following supplymen were present and addressed the meeting: J. G. Ordway, manager and assistant treasurer of Crane Co., St. Paul, Minn.; B. P. Bredesen,

Earl Traut, newly elected director, and Peter Melgrin, both of Rapid City, S. Dak., who drove 420 miles across the state to attend the convention

of the Herman Nelson Corporation of Moline, Ill.; Ray Hodgson, manager of the Sioux Falls branch of the Crane Co.; C. E. Hill, Minneapolis, Minn., representing Hoffman Specialty Co.; Earl O'Toole, Watertown, representing the Crane Co.; J. B. Harris of Rose & Harris, Minneapolis; Thomas A. Clareson, of the A. Y. McDonald Mfg. Co.; C. H. Bill, Watertown, and J. McDonald of the A. Y. McDonald Mfg. Co. of Minneapolis, Minn.

The Annual Banquet

The convention came to a close on Thursday evening with a banquet at the Lincoln Hotel, the speaker of the evening being J. Adam Bede, who delivered an address on "The Changing World."

The convention this year was considered by those in attendance to be one of the best in several years. A spirit of enthusiasm and co-operation prevailed, and a constructive program was planned for the coming year.

◆

Westchester County Masters Plan Big Party for February

The Master Plumbers Association of Westchester County, N. Y., is planning to hold its annual Ladies' Night party the latter part of February. In the past the association has always held both a Ladies' Night party and an annual ball, but this year the two parties will be combined. The affair will be held at the Lawrence Inn, Mamaroneck, N. Y. George H. Boettner is chairman of the committee in charge.

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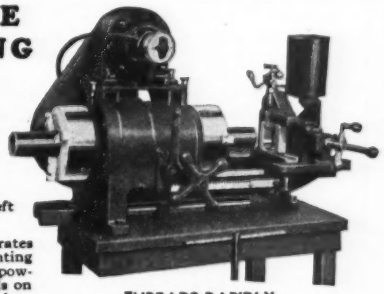

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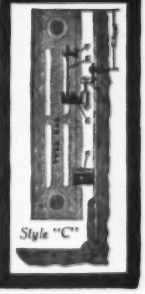


Style "C"

Don't Listen to the Croaker
Others Are Making Money Now—So Can You

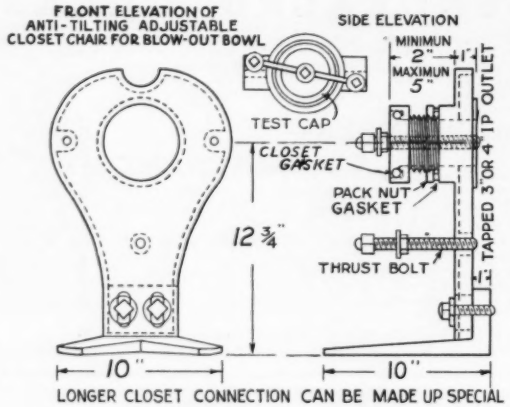
The hustling, wide awake man in the home heating field is making money. There is no secret about it. He has taken on the selling agency in his section for COLUMBIA Gas Burners, Conversion Type, and is working a wide open market offering little or no sales resistance.

The home owner is sold on the idea of burning gas for heating. He is ready to buy and install in his heating plant a Conversion Type Gas Burner.

Because the COLUMBIA Burner is safe and trouble proof, the prospect is easily persuaded to sign on the dotted line. The COLUMBIA possesses all the features and latest developments from the best brains among gas engineers and home heating experts. It has no competition. It is so superior that it offers no grounds for comparison.

If in the home heating line, we suggest you write the Columbia Burner Company, 1645 Dorr Street, Toledo, Ohio, and ask for information about this new avenue of wonderful revenue that has opened up to distributors for COLUMBIA Burners.

Those interested should write at once.



[*Illustration is for Blowout bowl, but can furnish for syphon jet also*]

Blake K-88-A Anti-Tilting adjustable wall hung closet chair with adjustable closet connection and test cap. Made heavy and for use in connection with any of our long line of closet fittings. Also arranged for any type of bowl. This is only one piece of our dozens of wall hung closet fittings. Complete catalog will be furnished upon request. We can take care of any job, no matter how complicated. Just let us know your requirements and we will furnish layout of proper fittings.

Sold through all jobbers.

BLAKE SPECIALTY CO.

Rock Island :: Illinois

BOILER SOLDER SEAL
THE METALLIC POWDER
HEATING BOILERS
SOLDER SEAL
TRADE MARK
BOILER SOLDER SEAL
Stops Boiler leaks permanently. Solder Seal is a metallic powder that makes a permanent PATCH. Easy to use, guaranteed not to harm Valves, Gauges, Pipes or Boiler.
W J CLEANSER
Cleans any heating system. Vaporizes, carries over with the steam or hot water, and cleans boiler, pipes, and radiators at the same time. Stops foaming and priming. Big profits for cleaning systems at this time of the year.
RADIATOR SPECIALTY COMPANY
CHARLOTTE, N. C.
WJ
BOILER
CLEANSER

Western Utility Announces Gas Appliance Sales Policy

The largest representation of the gas industry ever held in San Francisco took place at the Commercial Club, on the evening of Jan. 7 when four hundred executives and employes of the Pacific Gas & Electric Co.; manufacturers and dealers in appliances; master plumbers; heating and ventilating engineers and sales representatives from San Francisco and the surrounding territory met at a get-together dinner, the feature of which was the announcement of a definite sales policy on the part of the gas company. The event was sponsored by the Pacific Coast Gas Association and the Gas Appliance Society.

O. C. Bunster, president of the Society, welcomed the guests with a brief talk followed by the introduction of Vice President G. P. Egleston who acted as chairman of the evening.

The principal speaker of the evening was R. E. Fisher, vice president in charge of public relations and sales of the P. G. & E. Co. His first remarks had to do with the varied forms of public contact enjoyed by his company, which fell into three groups: first, 2,500 dealers throughout northern California; second, 18,000 employes; and third, 500 salesmen. That the employes, alone, constituted a sales force to be reckoned with, was shown by the fact that $20,000 was paid them in bonuses for business obtained through their efforts last year. Pointing to a new business mark of $8,000,000 in 1930, about half of which was for gas, Mr. Fisher said: "This shows very plainly that the people of this immense area have been sold the acceptance of natural gas as a commodity."

Outlines Utility Company Plans

Outlined in brief form with the aid of lantern slides, and expanded upon by the speaker as occasion required, the following points were brought out by Mr. Fisher as embracing the statement of the Pacific Gas & Electric Co.'s appliance sales policy:

> The best public service can come only from a united industry composed of the utility, appliance manufacturers, jobbers and dealer trade.
>
> An organized effort by the entire industry is essential if the maximum amount of business is to accrue to each group through the creation of consumer acceptance of our products.
>
> Such a united industry can and will successfully compete with other organized industries to the end that a fair share of the public buying power will be obtained.
>
> It is the *duty* of the utility particularly to do pioneering selling in that appliance field where there is no public demand or due to special conditions no adequate retail profit for creative and aggressive selling by retailers.
>
> The utility, in addition to supplying quality service at fair rates, should assume leadership in the sale of quality appliances at established retail prices, adhering to ethical, constructive merchandising methods on a basis that will encourage the activity of all legitimate retailers.
>
> Such ethical leadership has stimulated and will continue to stimulate public buying of ap-

pliances, installation work and general supplies.

It is the desire of the Pacific Gas & Electric Co. to continue encouraging as many legitimate retail appliance dealers as can economically operate to co-operate with such natural outlets by financing and executing constructive educational, selling and advertising campaigns.

Merchants and dealers can and should retail appliances at prices fair to themselves and the public by such methods as have been found to be sound by successful retailers.

The manufacturers and jobbers can best contribute to this plan by supplying well advertised merchandise of unquestionable quality at prices which permit the seller a legitimate profit margin.

The Pacific Gas & Electric Co. will continue to keep an open mind; to be guided by facts; to hold out to all groups the right to full discussion; to hold to those policies we believe to be right, but to concede quickly where we find we are wrong.

Mr. Fisher also gave a total estimated appliance and equipment market in the northern California territory for 1931 which indicated vast possibilities for those whose efforts are being directed along the lines of merchandising. The estimate follows:

	Number	Estimated Value
Gas Ranges	25,000	$2,100,000
Automatic Water Heaters	12,000	1,000,000
Furnaces and Boilers	5,500	825,000
Small Heating Appliances	15,000	750,000
Domestic Conversion Burners	8,000	800,000
Commercial Heating Jobs	1,800	450,000
Hotel and Restaurant Ranges	350	50,000
Industrial Equipment	700	200,000
Value of Piping and Sheet Metal Work		1,500,000
Value of Construction Material and Equipment		7,000,000
Total 1931 Value		$14,675,000

Managing Director Frank Runyan of the Retail Furniture Dealers Association gave an able talk which might be summed up as reflecting the viewpoint of his group with regard to the business possibilities for the coming year. This was followed by a well drawn outline of the history of the gas industry, by Charles B. Babcock of the C. B. Babcock Co., who dated the industry from 1815, bringing it through the Civil War period and up to the present time.

The Background and the Future of the Gas Heating Industry

The program was concluded by a short talk from President A. F. Hockenbeamer of the Pacific Gas & Electric Co., concerning the background and future of the gas industry. As he closed his address, Mr. Hockenbeamer commented on the present day methods of merchandising, summing up his impression by stating that ". . . this meeting is significant of the growth of co-operation between the various branches of this industry."

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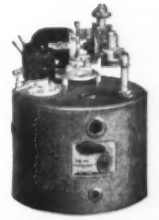
1. EFFICIENT
2. ECONOMICAL
3. COMPACT
4. NEAT
5. RELIABLE
6. STURDY
7. SAFE
8. SURE
9. SATISFACTORY
10. DURABLE
11. POWERFUL
12. PROFITABLE

Our "Daily Dozen"

SUPER TURBINE Pumping Units

BURKS

COMPLETE Water Systems



RETURN-TO-BOILER Condensation Units

DECATUR PUMP COMPANY DECATUR, ILLINOIS

Put it to work now!

Made of pure gum rubber for hardest use in all installations.

THIS carton is at your jobber's, waiting for an opportunity to bring you your share of **DUR-A-BAL** profits. Why not order it today and put it to work for you?

LAVELLE RUBBER CO.
320 West Illinois Street
Chicago :: Illinois

DUR-A-BAL
REG. U. S. PAT. OFF.

Legal Questionnaire

Answered by "The Judge"*

How to Dissolve a Limited Partnership—Liability of Tenent for Rent When He Does Not Occupy Leasehold

Editor "DOMESTIC ENGINEERING":—I should like to get your advice on a couple of questions which are bothering me.

If a limited partnership fails to make money as anticipated, do the limited partners have any claim against the general partners?

How do you proceed to dissolve a limited partnership before the time in the agreement has expired?

A party rents a house on a lease for one year, but moves out before the year is up. Can the owner collect the rent from the renter for the period the house was unoccupied under the lease?

The renter informs the owner that the heating plant has been drained when he moves out, so that the owner does not drain it. It freezes. Can the owner hold the renter for damages or the costs of repairs? Assume that the renter has the house under lease but is not living in the house.

Illinois. A. L. V.

Answer:—In the absence of what would amount to fraud, a limited partner has no claim against the general partners for failure of profits such as had been anticipated. Fraud, in the sense that I use it, covers such situations as are recognized by the courts as amounting to fraud, although there may be no actual intent to defraud. Such fraud might be found in a case where a partner used such poor judgment that the courts would say that no reasonable man would have undertaken a certain source of action. But you must understand that such unreasonable judgment or conduct must be of a kind which has all the earmarks of actual fraud. In other words, the conduct must be such that it would be fraudulent, if done by a man of reasonably good judgment.

Mere mistaken judgment would not be found to be fraudulent. Many business men of the best intentions make mistakes; legislatures pass laws that practically put some kinds of business on the rocks; and changes in public wants and likes wreck many lines of business.

It is therefore not very often that a limited partner has a valid claim against his other partners for failure to make anticipated profits. In addition, it is a hard matter to prove a set of facts which would give a limited partner the right to sue the other partners for damages because of a failure to make money. It is much the kind of a situation which arises when stockholders endeavor to make the directors of a corporation pay for mistaken judgment. The courts hold in such cases, that if the directors use their best judgment, and it is at least a reasonable judgment, the directors are not liable to the stockholders in the absence of actual fraud.

The answer to your second question, regarding the method of dissolving a limited partnership before the end of the term provided in the partnership agreement, will depend in the first instance upon the wording of the partnership agreement. If the partnership agreement provides for the dissolution of the partnership, that method should be followed, with, perhaps, such alterations and changes and arrangements as all of the partners shall mutually agree upon. If it is necessary to change the provisions of the partnership agreement, all of the partners should agree to the change, and it is best to have them so agree in writing.

If the partnership agreement makes no provision for the dissolution of the partnership, then it is possible for the partners, all of them, by mutual agreement, to arrange for the dissolution under such method as they may think best suited to all parties in interest. Any reasonable method of dissolution, if agreeable to all parties, is permissible. This kind of dissolution arrangement is perhaps the best for all concerned, for the reason that it is usually very likely that when the partnership is formed and a method of dissolution provided in the partnership agreement, circumstances cannot be foreseen which would make another method of dissolution advisable. Therefore, if all the parties are able to agree upon a method of dissolution, at the time it is desired, that is the very best way to end the partnership.

In the case of a going business, it is perhaps as satisfactory as any other way, for an agreement to be drawn providing that the value of the business shall be ascertained, and then have one or more of the partners buy out the other partners, and carry on the business under a new partnership agreement. This is feasible, of course, only in case the partnership is solvent. It is well to remember, in such a case, that the retiring partners should protect their interests by taking the necessary steps to inform existing or former creditors of the change in the partnership. In fact, if the business is to be carried on, after the dissolution of the partnership agreement, it is almost necessary that legal advice be sought as to the various steps which must be taken to protect the retiring partners. If a partner retires, or a partneship is dissolved, and the business of the partnership is carried on under the same name, the retiring partner is liable for the debts of the partnership which may become due to such persons as had formerly dealt with the partnership and again deal with it after the retirement of the partner, provided that such creditors had no knowledge of the retirement of the former partner and the formation of a new partnership under the same name. In other words, the law says that if a person has dealing with a partnership of Jones & Smith, and Jones—without the knowledge of the creditor—withdraws from the partnership, and further credit is thereafter extended to the continuing business under the name of Jones & Smith, then the retiring partner remains liable to that creditor for debts incurred by Jones & Smith after his retirement. And this is so even though the remaining partner, Smith, has agreed with Jones that he will inform all creditors of the

*Every effort is made to the end that these answers may be authoritative. However, we cannot assume any responsibility because of the very nature of the service, which is rendered without a personal interview.—Editor.

change, if he does not do so. Legal advice, under such circumstancces, is often the least expensive method of closing up a partnership business.

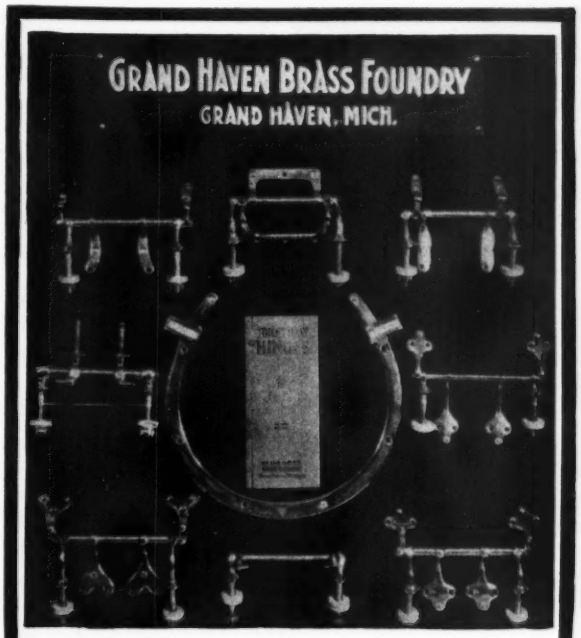
Also, it is essential, whether a partnership is closed up, according to the method provided in the partnership agreement or by some method mutually agreed upon by the partners, that the limited partnership certificate which has been filed with the recorder of deeds in the county where the principal office of the partnership is located, should be cancelled as of record.

If the partners come to odds over the actual dissolution, it is always possible to go to the courts and have a decree entered dissolving the partnership and providing the method by which it shall be dissolved.

Answering your third question, it is the law that if a lease is executed for a certain term, the tenant is bound to pay rent for the entire term, even though he does not occupy the leased premises, provided of course that nothing takes places which relieves him of that obligation, such as a mutual cancellation of the lease, or default of some kind on the part of the landlord. In other words, the mere fact that tenant does not occupy the leased premises is not a defense to the suit for the payment of rent. I might add, that the landlord has an obligation to make reasonable efforts to rent the premises to another tenant, and if the landlord does secure a new tenant, the rent paid by the new tenant is deducted from the rent owing by the original tenant under his lease. If the landlord, by reasonable effort, is unable to secure a new tenant, the original tenant will have to pay the rent as provided in his lease. This merely means that the landlord cannot sit back and not try to secure a new tenant.

Your fourth question presents a more difficult situation, principally because the facts resulting in such a damage, because of a failure to drain the heating system,

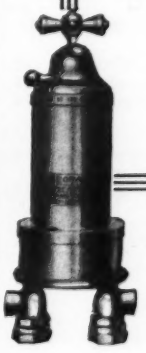
Top row: Charles Wall, Sloan Valve Co.; John Weil, John Weil Plumbing Co. Bottom row: Leo M. O'Neil, president of Eastern Supply Association, New York City; P. R. Tully, P. R. Tully Plumbing Co. Photos taken at the meet of the Plumbing Industry's Golf Association of New York City



Toilet Seat Hinges by Grand Haven mean complete and lasting satisfaction. Any Brass Goods by Grand Haven mean at least this.

GRAND HAVEN BRASS FOUNDRY
Grand Haven, Mich.

Leonard
Thermostatic Water Mixing
Valve

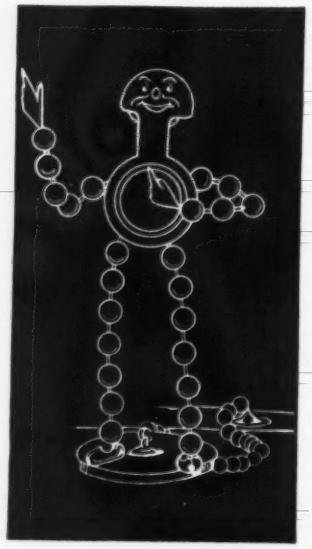


THERE is not a water mixing job that cannot be handled more efficiently and economically by a Leonard Thermostatic Mixing Valve.

These Valves are easy to install and easy to operate. Once adjusted they keep water at a consistent predetermined temperature.

Write us for complete catalog.

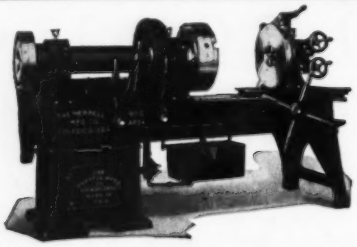
Manufactured by
LEONARD-ROOKE COMPANY
Incorporated 1913
ELMWOOD STATION, PROVIDENCE, R. I.



PLUMBING POPULARITY

Popularity comes from service, and that's what I do best—give plumbing service. I hold the stopper tight and fast, I add distinction to the fixture, and I stand the wear of years. It costs but little to attach me to a waste and overflow connection, and each attachment brings approval for the plumber. Yes, it pays to use Bead Chain.

THE BEAD CHAIN MFG. COMPANY BRIDGEPORT, CONNECTICUT



Upholsterers are doing a "land-office" business on remodeling old furniture because they're going out after the business. There's far more old plumbing and heating in this country than there is old furniture.

Plumbing and heating contractors will find numerous jobs in their community's old homes if they go out and look them up.

But first, contractors should equip themselves with Merrell Pipe Threading Machines to handle their jobs and to be sure that they will be able to quote prices low enough to be sure of the work. Write today for the Merrell bulletins.

The Merrell Manufacturing Co.
942 Curtis Street Toledo, Ohio

Makers of

MERRELL
PIPE THREADING MACHINES

would have so much to do with the correct answer in a given case. Very generally, I should say that if the tenant's lease did not require him to drain the heating system, and the situation which you cite was merely one in which the landlord asked the tenant whether he had drained the heating system, and the tenant stated that he had done so, the tenant would not be liable in damages to the landlord for the freezing of the system. Probably the courts would say that if the landlord did not take the pains to find out whether the system had been drained, he should suffer the consequences. This result is based upon the supposition that the tenant was not required by his lease to drain the system, and also upon the supposition that the tenant was given nothing for doing what he was not required to do. In other words, a person is not liable for failure to do what he is under no obligation to do. Of course, if the facts were such that the landlord had permitted the tenant to get out before his lease had terminated and had made the termination of the lease before its expiration conditional upon the draining of the system by the tenant, the answer would be different and the tenant might be liable for the damage done.

Also, the tenant would be liable for damage as a result of the freezing of the heating system, if the tenant vacated the premises before the expiration of his lease, failed to notify his landlord, and the circumstances were such that he could be held to have been negligent in not taking precautions against cold weather.

As to the last part of your last question, if a tenant is under lease, and does not live in the house, he would be liable for the freezing of the heating system, provided the landlord had no knowledge which should have put him upon his guard. A tenant is responsible for damage to the premises he has leased, as long as his lease is in effect, provided the damage is due to his negligence. This last is a very general statement.

◆

Program for Wisconsin Short Course is Announced

Many master plumbers, foremen, plumbing inspectors and instructors have registered for the plumbing short-course to be held at the University of Wisconsin College of Engineering, Madison, Wis., commencing February 9.

The course has been arranged in co-operation with the Wisconsin Master Plumbers' Association and will consist of thirty lectures and a daily laboratory period of two and one-half hours.

Among the lecturers to appear during the course will be George N. Thompson, secretary of the building code committee, department of commerce, Washington, D. C.; S. Lewis Land of the Heating and Piping Contractors' New York City Association; Professor S. E. Dibble, professor of plumbing, Carnegie Institute of Technology; George P. Hambrecht, state director of vocational education; Frank R. King, director of bureau of plumbing and domestic sanitary engineering of Wisconsin; D. W. Mead, professor of hydraulics and sanitary engineering, University of Wisconsin; Lewis F. Warrick, state sanitary engineer; W. D. Stovall, director of the state hygienic laboratory; J. H. Mathews, director of chemistry; Professor O. P. Watts, chemical engineering division, on electrolysis; Professor R. A. Ragatz on welding, and Professor John R. Commons on labor.

The lectures are all on the basic principles of codes

and their application and will cover the following subjects: Plans, symbols, details, drawing and sketching, water softeners, welding, street main connections, adequate fire supply, special fixtures, stop and waste, pressure regulators and pressure reducing valves, screw thread cast iron pipe, cutting, threading and jointing, stringer joints, packing and hot water circulation.

◆

New Haven Plumbing Firm Now in New Business Home

The Curtiss & Pierpont Co. of New Haven, Conn., has moved from 272 Elm street to 129 Whalley avenue. A photograph of the shop is shown. The rear of the house is used as a shop, the living room, sun porch, and kitchen being used as the office.

The new establishment of Curtiss & Pierpont Co. in New Haven, Conn.

Obituary

Death of Christopher J. Doyle

Christopher J. Doyle, for many years a member of the Master Plumbers' Association of Philadelphia, Pa., died December 22 at his home, 1016 South Forty-seventh street, in that city. A large number of the association membership attended the funeral, which was held at St. Francis church on December 27, where a solemn requiem mass was offered.

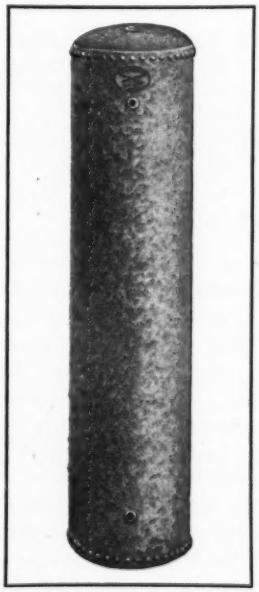
Death of J. R. Harmon

J. R. Harmon, a member of the plumbing and heating contracting firm of Kritzer & Harmon, Richmond, Va., died recently at his home in that city following a brief illness. Mr. Harmon had been a member of the Master Plumbers and Heating Association of Richmond for a number of years. many members of the association attending his funeral. A committee was appointed by the president of the association to draft a resolution of condolence to be spread upon the minutes of the association, a copy of which was sent to Mr. Harmon's family.

Death of Caleb H. Willey

Caleb H. Willey, master plumber and heating contractor, of Springfield, Ill., died recently at his home in that city, in his 54th year. Mr. Willey was born in Springfield and for the past 30 years had been engaged in the plumbing and heating business

1881 — FIFTY YEARS OF SERVICE — 1931



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. . . . You buy QUALITY, based on a reputation of 50 Years' standing.

. . . . You buy construction, based *not* on price, but on correct design plus careful, conscientious workmanship.

. . . . You buy RELIABILITY, the cornerstone of KOVEN'S growth, since 1881!

Range Boilers
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154 Ogden Ave. Jersey City, N. J.

1881 — FIFTY YEARS OF SERVICE — 1931

As you gain new business and the confidence of your customers by installing welded pipe systems, permanently leak-free, you will develop increasing confidence in Airco Oxygen if you give it a trial.

Its uniform quality and availability in any quantity should interest you if you are welding. If you are not, we shall be glad to explain how to gain customers, more business and even cut your overhead thru its use.

Air Reduction Sales Co.
Lincoln Bldg., E. 42nd St., New York City

YOUR FITTING PROBLEM IS SOLVED *when you say* "SQUARE GEE'S"

SQUARE Pipe — "GEE" Fittings

MALLEABLE, CAST IRON — DRAINAGE, BRASS

THE GRABLER MANUFACTURING COMPANY
New York · Chicago · CLEVELAND, OHIO *· San Francisco · Los Angeles*

NATIONAL Control

of dampers, centered in METAPHRAM DAMPER REGULATORS provides constant, gradual movement of draft and check dampers to compensate for changing heat demands.

There is a METAPHRAM DAMPER REGULATOR for every domestic heating boiler.

Write for descriptive literature covering your control requirements

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Josam TRADE MARK REG.
PRODUCTS
APPROVED SANITARY SPECIALTIES
JOSAM MANUFACTURING COMPANY
Cleveland, Ohio
4904 Euclid Bldg.
FACTORY: MICHIGAN CITY, INDIANA
BRANCHES IN ALL PRINCIPAL CITIES
Floor and Roof Drains, Sewer Valves, Closet Outlet Connections, Interceptors, etc.

in that city. Aside from his regular vocation, Mr. Willey took a great interest in music and was actively associated with the principal bands and orchestras of the city. He was a member of the Central lodge, No. 71, A. F. & A. M., Springfield consistory and Ansar temple of the shrine.

Death of Louis Sullivan

Louis Sullivan, master plumber of Cleveland, Ohio, died on December 10, following an attack of acute indigestion. He was in his 44th year. Mr. Sullivan was a member of the Associated Plumbing Contractors of Cleveland, and also of various Masonic lodges in Cleveland and Fort Wayne, Ind. Mr. Sullivan had for a number of years conducted a plumbing business at 12913 Miles avenue, Cleveland. He was at one time secretary of the South End Merchants Club of Cleveland and of the South End Kiwanis Club. At the time of his death he was secretary of the Garfield Heights Transit Company. He leaves a widow and three children.

Death of Wm. P. Ashenhurst

William P. Ashenhurst, a former resident of Little Falls, N. Y., died in Cortland, N. Y., on December 17, in his 95th year. Mr. Ashenhurst came to Little Falls about 50 years ago and engaged in the plumbing and heating contracting business with the late Thomas McDermott. After the death of Mr. McDermott he was joined in business by his son, Fred A. Ashenhurst. Later the business was incorporated as the Standard Plumbing and Heating Company, which is now located in West Main street. He left Little Falls in 1919 to locate in Brooklyn, N. Y.

Death of John C. Friel

John C. Friel, for many years in the plumbing and heating contracting business in Kansas City, Mo., died recently at St. Joseph hospital, in that city. Mr. Friel was in his 52nd year, and death was due to pneumonia. He was an honorary member of the Kansas City Master Plumbers Association. About ten years ago he left the plumbing business to form the Whitaker Battery Supply Co., of which firm he was vice president and treasurer at the time of his death. Mr. Friel was also president of the Mohawk Investment Co., a director in two Kansas City banks and held membership in several clubs.

◆

Protest Use of Prison Labor

Protests by L. R. Schmaus, president of the Plumbing & Heating Club, Milwaukee, Wis., and Peter J. Schoemann, organizer of the local journeymen's union, on the use of prison labor to install two hot water heaters in the house of corrections, at Milwaukee, resulted in a decision by the county board's committee on institutions not to have the work done by the prisoners.

Protest has also been made by Milwaukee master plumbers, with F. C. Kuetemeyer as spokesman, against what was called remodeling of local school buildings by the repair crew of the school board. It was urged that this work be let to contractors. Mr. Kuetemeyer said that local men had no objection to the board having a repair crew and doing repair work directly, but did object to the crew doing jobs that amount to remodeling.

Questions?

ASKED BY READERS AND ANSWERED BY EXPERTS

More About Regulations of Gas Installations

Editor, DOMESTIC ENGINEERING:—I have just read your article in the December 13th issue on the subject of gas regulations for Oakland, Calif. I am a committee of one of the master plumbers' association of our city, for the enactment of a new code regulating gas installations.

As an association we are very anxious to present and secure the passage of a code in which the public will be benefited 100 per cent, if it be possible to enact such a code.

We realize that it is necessary to present figures relating to the hazardous side of the conditions we are trying to remedy.

In this article you refer to many deaths caused in the United States charged directly to improper gas appliances, piping, etc. Kindly give us the number of deaths in the United States or in the various states, due to these causes.

Oklahoma. H. G. W.

Doubtless authentic figures or statistics on this subject would be valuable to many besides H. G. W.

The only reliable source of information on this subject seems to be the Bureau of Mines, Department of Commerce, in Washington. A letter from this bureau, reads as follows:—

"So far as we know, the number of deaths due to carbon monoxide is not available. We have secured some information occasionally from different organizations, but in many cities the death certificates are not made so as to distinguish between gas poisoning and other accidental deaths. The following statistics of domestic poisoning by carbon monoxide were given to us by Dr. E. R. Hayhurst, of the State Department of Health of Ohio for the winter season of 1924-1925:

	Deaths	Partial Asphyxiations
Gas-fired room heaters	22	36
Cooking stoves (used for room heating purposes)	9	11
Gas-fired water heaters	5	5
Hotplates	0	5
Furnaces (gas and coal) and stoves (coal)	2	19
Auto exhaust	19	21
Gas engine exhaust	0	4
Total	56	101

The statistics given below were furnished by the Commissioner of Health of the City of New York:

	1923	1924
Accidents	525	519
Suicides	327	332
Total	852	851

The above, while fragmentary, seems to be about the only official information that is obtainable on this subject.

◆

Rules Against Gasoline in City Sewers

Editor, DOMESTIC ENGINEERING:—We have a cleaning and dyeing building being built in this city, and they wish to flush the sludge out of the gasoline tanks into a floor drain or sand trap which is connected to the city sewer, and I have ruled against it, owing to the liability of gasoline being wasted into the sewer from said tanks.

The architect thinks I am in error in asking him to run the waste line to a well in the yard, and let sludge be carted to the city dump.

Will you at your earliest convenience let me know if I am correct or not, in my contention that it should not be connected to the sewer.

California. Plumbing Inspector.

Without any hesitancy, the plumbing inspector is absolutely correct in his ruling, and we would naturally

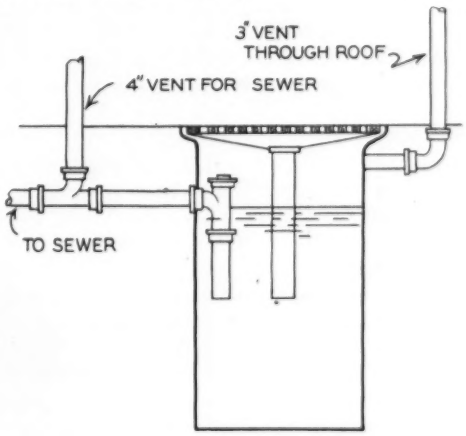

Fig. 1

suppose that any architect would fully understand the conditions back of such a ruling.

Particularly since the coming of the automobile in such vast numbers, it has become most necessary to take strong grounds against the discharge of gasoline and oils into public sewers. Anyone who reads the newspapers should know that in the past there have been a number of disastrous sewer explosions due directly to the practice of discharging these volatile substances into the public sewers.

Within the last year or two such an explosion occurred in Newburgh, N. Y., resulting in the killing

of one man, as we recall it, and in great property damage.

The danger, which is a modern one, arises principally from public garages and washstands, filling stations and cleaning establishments, the danger coming from the large quantity of volatile liquids that may directly enter the sewer in the ordinary carrying on of regular business of such establishments, unless proper means are taken to prevent such a result.

The proper remedy is the one the plumbing inspector has prescribed,—the use of a catch basin which will

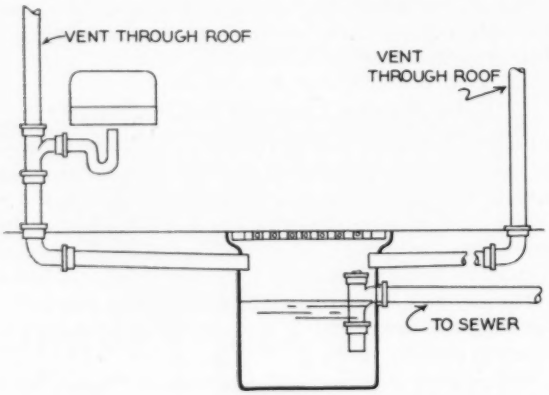

Fig. 2

properly hold back all gasoline and oil from entering the sewer, and also intercept sand, sludge, etc., this material being removed by hand.

Many of the modern plumbing codes specify in detail the manner in which garages and other establishments using these volatile liquids shall handle such wastes. Not all plumbing regulations specifying for garage drainage include drainage from cleaning establishments, but they certainly should do so, and more and more this is being done. It should be pointed out that in many instances, such as the one under consideration, where the code does not cover the subject, verbal decisions are often made, and should be made under such circumstances.

The Ohio state plumbing code covers this entire subject in a very satisfactory manner, and we quote from it a part of the regulations, in order to prove the position we have taken. We quote as follows:

"In municipalities having a sewerage system, garage or other structures for the housing, sale or repair of automobiles which is provided with a water supply of either a temporary or permanent character, or in which automobiles are washed, cleaned or repaired, shall be provided with proper means for draining the floors and repair pits, in such a manner that no drainage therefrom shall flow over any street, alley or paved approach. Such drains shall be so arranged as to intercept all oil, gasoline or other inflammable fluids, as well as sand, silt and other solids for the purpose of excluding same from the sewerage system.

"Such drains shall have the accumulated oils and other inflammable fluids pumped or otherwise removed therefrom at regular intervals, and shall be so maintained as to insure the exclusion of the same from the sewerage system."

Following the above come specifications for the garage catch basin, etc., and then the following paragraph, which applies directly to the subject we are considering:

"Every building hereafter constructed or converted into a place of business, where gasoline, benzin, naphtha, or other inflammable oils or compounds are used, also any existing building where such business is carried on, shall be provided with a special drain the same as that required above for garages. . . . Such catch basins may be constructed of cast iron, earthenware pipe with not less than four inches of Portland cement concrete surrounding it and including the trapped outlet, or of concrete or brick, as required for tight cesspools."

The Ohio state code offers a general design similar to that shown in Fig. 1 for the garage catch basin.

Another layout is shown in Fig. 2. Here the gasoline is delivered above the water line, and it has an opportunity to quickly vaporize, with the fumes passing off at once through the ventilation pipe.

◆

Concerning Cincinnati Plumbing Practice

Editor, DOMESTIC ENGINEERING:—In Cincinnati we are allowed to install 7 sinks or urinals, or 10 lavatories on a 4-inch stack if we use anti-siphon traps and stay within 3 ft. of the stack.

The drum trap is prohibited.

Regarding use of the S-trap and stack venting, I wish to call attention to Fig. 1, which is permitted in Cincinnati.

I was once criticized by the examining board while taking an examination because I said a lavatory connected in this way was not vented. However, this is a handy way to do remodeling, and seems to work satisfactorily.

Ohio. C. A. K.

We are not sure that we have Cincinnati's latest plumbing code, but the copy we have covers the subject mentioned above, in the following section:

"Where lines of waste are used exclusively for kitchen sinks and washstands, they can be run without re-venting, but must be of proper size and area to prevent syphonage and back pressure. Size of pipe should be in accord with the following table:

Sinks	
1	2-in. pipe
2 to 4	3-in. pipe
4 to 7	4-in. pipe

Washstands	
1 to 2	2-in. pipe
2 to 6	3-in. pipe
6 to 10	4-in. pipe

"In no case can a one-pipe system be used in a building over 4 stories in height.

"Where sinks and washstands are installed in this manner,

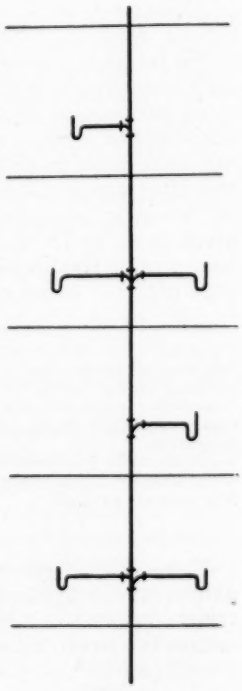

Fig. 1

they must be properly trapped, and no fixture trap must be set away from the main pipe more than 3 ft.

"In all existing tenement houses a one-pipe system can be used for washstands, sinks, laundry trays, and bathtubs, provided, however, that a 4-in. pipe is used, and no more than five fixtures can be connected to this line."

In the foregoing nothing is said about the use of non-siphon traps. Either this requirement has been added to a revision of the plumbing code, or it is a requirement which is enforced notwithstanding that it does not appear in the code.

The criticism C. A. K. received was not deserved,

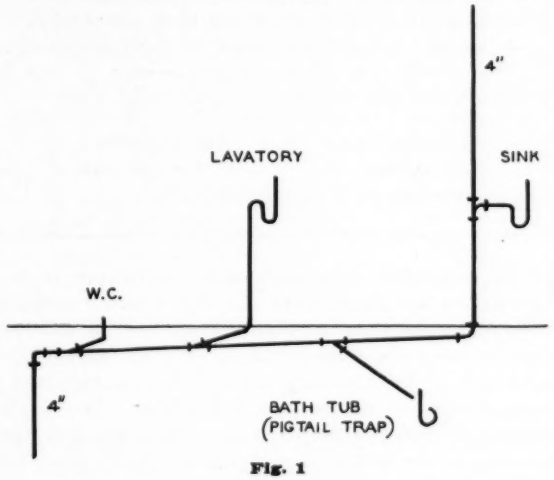

Fig. 1

as we look at it. In our opinion, the only trap that can be said to be vented in Fig. 1 is the trap on the top floor.

He alludes in his letter to stack-venting. We do not consider Fig. 1 to be a stack-vented job, for we have already stated that it is not to be looked upon as a vented installation. The top fixture is stack-vented, but no other fixture in Fig. 1 can be said to be stack-vented.

No doubt it may sometimes be handier and less expensive on an overhauling job to use the so-called one-pipe system, but if it is not the best method, we contend that except under extreme conditions the vented system should be used. When old plumbing is replaced or overhauled, the work should be done as nearly as possible to give the inmates the best sanitary conditions that can be provided.

Along with Fig. 1 came Fig. 2, with a note stating that the installation could be installed without vents only when no fixtures enter the stack on a floor above or below, that all traps must be within 3 ft. of the stack, and that the water closet connection must be the lowest connection, on the sewer side of the others.

We cannot see that conditions could arise that would create siphonage of any one of the traps. Requiring the water closet connection to be made beyond the other fixture connections is a wise plan, as it overcomes any aspirating effect of the water closet discharge on the smaller traps, which would be the most serious difficulty to be handled.

If the lavatory could be stack-vented, it would be an

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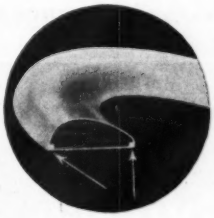

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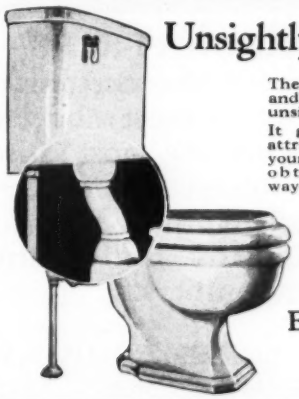

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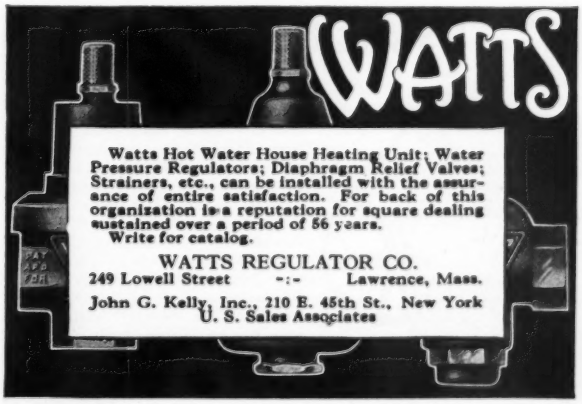

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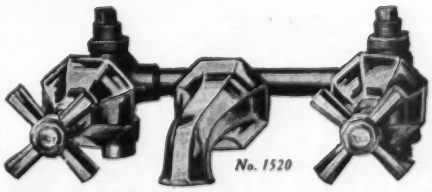

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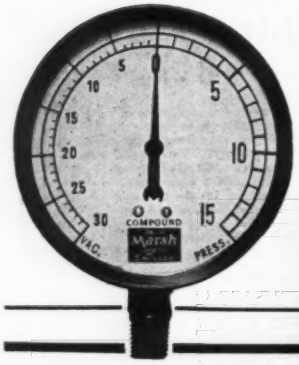

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Questions Answered and Discussed by Readers

How Would You Answer This Question?

A factory space near the engine room has to be warmed to 70 deg. Fahr. in zero weather with steam at 15 to 20 inches of vacuum, taken from the engine exhaust line ahead of the condenser. How would you select the proper size of unit heaters and how would you install the system?

Answers based upon your experience, and suitable, will be paid for and published in the February 21 issue.

IN the November 29 issue the question for our readers to answer was in the form of a mathematical problem. It is very interesting to note the number of different ways to solve the same problem. Eleven answers are published in the following table. One comes from a reader located as far away as Porto Rico. Five of the answers are almost exactly the same, the slight difference occuring in the matter of carrying decimals. Only one serious error is apparent, and that is in connection with the fourth answer. It will be noted that his answer for the volume of the metal in the pipe agrees closely with the majority of the other volumes. The error occurred in multiplying this volume by the weight of one cubic inch of the material, namely, 0.278.

The reply from Charlotte, N. C., contained two answers. The first one was obtained by working out the problem in detail, while the second one was obtained by referring to a handbook giving the weight of this pipe per lineal foot. A difference of 37 pounds, or approximately 4 per cent, resulted, which would be appreciable in a plumbing or heating estimate. Insomuch as the problem definitely stated what factors to use, the North Carolina reader should have only considered them. However, he is to be complimented on working out an approximate check for his computations. The difference in his answers undoubtedly was due to a difference in the weights assumed for the material in question. When specifying and estimating a certain material on a weight basis, it is a good plan always to verify the unit weights used, as a slight difference in the unit will throw the entire estimate off.

The problem was solved in two general ways. In one case the pipe was thought of as consisting of two circular areas, the cross sectional area of the metal being the difference between these two areas. In the other case the metal was considered a curved plate, the thickness of which being the thickness of the pipe and the width of the plate being the length of the circumference of the circle lying mid-way between the exterior and interior circles. One reader expressed it as being the neutral

axis of the pipe or indifferent line which neither expands nor contracts when the cross section is rolled or distorted.

		Volume per lin. ft. in cu. in.	Total volume of material cu. in	Total weight of pipe in lb.
1.	J. S. Battle, San Juan, Porto Rico	12.56		955.74
2.	Bruce T. Bourne, Chicago, Ill.		3435.39	955.04
3.	Walter J. Kilarski, Cambridge Springs, Pa.		3513.88	976.86
4.	M. Labov, Atlantic City, N. J.		3435.06	1064.95
5.	James Lyttle, New York, N. Y.			953.65
6.	T. F. Maguire, Charlotte, N. C.			950.38 987.66
7.	Gordon Meech, Enid, Okla.		3419.04	950.49
8.	Joseph V. Quirk, So. Boston, Mass.		3435.56	955.09
9.	George A. Rock, Chicago, Ill.			955.94
10.	Robert M. Ross, Gary, Ind.		3435.06	954.94
11.	Joseph A. Sullivan, West Roxbury, Mass.		3435.56	955.09

A very good way to work any problem is to reduce it to a common formula or equation. This was done by James Lyttle of New York. His work is as follows:

The volume of a cylinder = 3.1416 × by the square of the radius × length. Or 3.1416 × the square of the diameter divided by 4 × length.

$$\therefore \therefore A = \frac{\pi D^2 \times 3284}{4} \text{ when } D = \text{diameter}$$

$$\text{Volume of large diameter cylinder} = \frac{\pi \times (2.37)^2}{4} \times 3284$$

$$\text{Volume of small diameter cylinder} = \frac{\pi \times (2.07)^2}{4} \times 3284$$

Volume of iron pipe = volume of large cylinder — volume of small cylinder

$$\text{Volume of pipe} = \frac{\pi \times (2.37)^2 \times 3284}{4} - \frac{\pi \times (2.07)^2 \times 3284}{4}$$

$$\text{or } \frac{\pi \times 3284}{4} [(2.37)^2 - (2.07)^2] = \text{volume of pipe cubic inches}$$

Therefore volume of pipe in cubic inches × weight per cubic inch = weight of pipe

$$\text{or } \frac{\pi \times 3284}{4} [(2.37)^2 - (2.07)^2] \times 0.278 \text{ weight per cubic inch}$$

= Answer 953.653 lbs.

Or more simplified rule:

The square of outside diameter of 2.37 = 5.61
The square of inside diameter of 2.07 = 4.28

Difference 1.33

length

Then 1.33 × .7854 × 3284 × 0.278 wt. per cu. in. = 953.653 lbs. Answer.

When he is finished he has the general rule, which may be stated as follows: To find the weight of a given length of pipe of known internal and external diameters and known weight, per cubic inch of the material used, multiply the length of the pipe, in inches, by the weight of the pipe in pounds per cubic inch, by the factor 0.7854 and by the difference between the square of the external diameter subtracted from the square of the internal diameter. The answer comes out in pounds. This expressed as a formula is:

Length × weight × 0.7854 × $(D^2 - d^2)$ = weight of pipe.

The method of considering the pipe a curved plate was used in the reply from Porto Rico. It is interesting in that it is concise, although complete in detail. The work is as follows:

Outside diameter = 2.37 in.
Inside diameter = 2.07 in.

$$\text{Mean diameter} = \frac{2.37 + 2.07}{2} = 2.22 \text{ in.}$$

Area of rim = length × width

$$= 2.22\pi \times \frac{2.37 - 2.07}{2}$$

$$= 2.22\pi \times .15$$

$$= 1.0472 \text{ sq. in.}$$

Volume of rim per ft. of length = 1.0472 × 12 = 12.5664 cu. in.

Weight per ft. = 12.5664 × .278 lb. = 3.495 lb.

Total weight = 3.495 × 273.66 = 955.74 lb.

◆

Brooklyn Association Starts Move for Comfort Stations

At one of its recent meetings, the Master Plumbers' Association of Brooklyn, N. Y., passed a resolution designating a committee to launch a movement designed to interest the authorities of the Borough of Brooklyn in the construction of public comfort stations. The committee immediately addressed letters to John H. McCooey, chairman of the Democratic committee of Kings County, who in reply indicated his intention of laying the matter before James J. Walker, mayor of the city of New York.

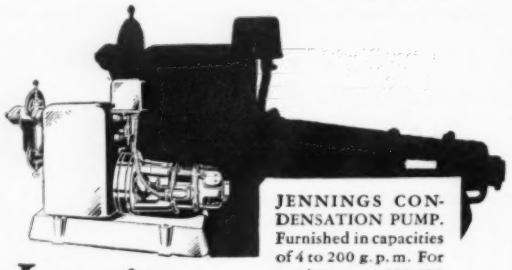
Letters forwarded to John Theophel, chairman of the executive committee of Queens Borough; William J. Flynn, Bronx; John F. Curry of Manhattan, and other political leaders, each set forth the need for such conveniences and suggested that a room adjoining each station could be set apart as a police booth, equipped with telephone, wireless, fire extinguishers, and first aid appliances. They further suggested that the cost could be provided through a long term bond issue and pointed to the employment such construction would create.

Those on the committee are: Joseph Rosenthal, chairman; J. J. Dixon, H. D. Jost, P. F. Halloran, Abraham Cohen, P. H. Gleason and M. J. Hayden.

◆

Dayton Association Elects Officers

The Dayton Master Plumbers' Association, Dayton, Ohio, has elected Henry S. Saunders as president for the 1930-31 term. Charles R. Park has been elected vice president, and Charles L. Ganger, secretary-treasurer.



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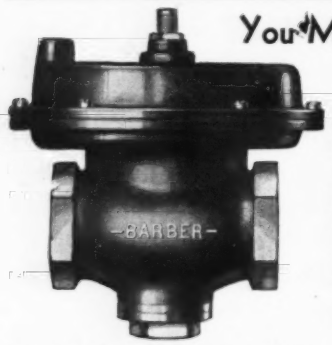

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FAIRBANKS-MORSE Home Water Systems

How Much Water Will Air Drink?

(Continued from Page 42)

mometer mounted on a single piece of wood, to the end of which a swivel handle is attached. This instrument merely provides a means for whirling both thermometers at the same time and enables the readings to be taken simultaneously.

The test for relative humidity, however, may be made with separate dry-bulb and wet-bulb thermometers as follows: Whirl the wet-bulb thermometer around on the end of a string 12 to 15 inches long. This whirling will cause evaporation of the water from the sack surrounding the bulb at a rate depending upon the condition of the air and consequently its ability to absorb moisture. The evaporation produces a cooling effect so that the height of the mercury in the thermometer falls. The rapidity at which it lowers and the point at which it comes to rest are governed by the dryness of the air. Whirling for two or three minutes is usually sufficient time for the level of the mercury to become stationary. A reading should then be taken to obtain the low point, the thermometer again whirled for a minute and another reading taken. This should be repeated until a reading is duplicated which will indicate definitely that the low point has been reached. This is then considered the wet-bulb reading.

A reading of the dry-bulb thermometer (which is the room temperature) should be taken at the same time. The difference between the wet-bulb and dry-bulb readings should then be obtained which, in conjunction with Table 3, permits a determination of the relative humidity existing at the time.

Assume that a dry-bulb thermometer reads 70 deg. Fahr. at the same time that a wet-bulb thermometer becomes stationary at 56 deg. Fahr. The difference in readings is 14 deg. Fahr. Refer to Table 3 and follow down the first column on the left to 70, which corresponds to the dry-bulb temperature observed. Then follow the horizontal line from 70 to the right until the vertical column 14 (difference between wet-bulb and dry-bulb readings) is reached. The relative humidity of 40 per cent is read.

The relative humidity as determined by the foregoing method should be compared with the relative humidity given in Table 1 for the same dry-bulb temperature in order to ascertain how nearly correct are the atmospheric conditions tested.

Suppose that in a test for relative humidity the reading for the dry-bulb thermometer shows 71 deg. Fahr. and the reading for the wet-bulb thermometer shows 57 deg. Fahr. What relative humidity do these readings indicate as existing? Compare the relative humidity found to exist with the relative humidity that should exist. Can the existing relative humidity be considered proper?

Solution:

Dry bulb reading 71 deg. Fahr.
Wet bulb reading 57 deg. Fahr.

14 deg. Fahr.

From Table 3.
Relative humidity existing = 41 per cent.
Relative humidity that should exist for the given

inside temperature = 39.2 per cent.

The existing relative humidity may be considered proper.

(To be Continued)

Group Connections for Lavatories and Sinks

(Continued from Page 72)

tirely omitted, the work would be as satisfactory as it is with the vent included. In other words, we do not agree that this loop vent acts as a vent. As we have explained more than once previously, in dealing with this same practice, in order to be effective, the vent piping must deliver air at or near the crown of the trap. If it does not do this, it is not possible for it to prevent siphonage, and if a vent will not act effectively to overcome and prevent siphonage, why use it at all? We need to qualify our statement by saying that the loop vent does

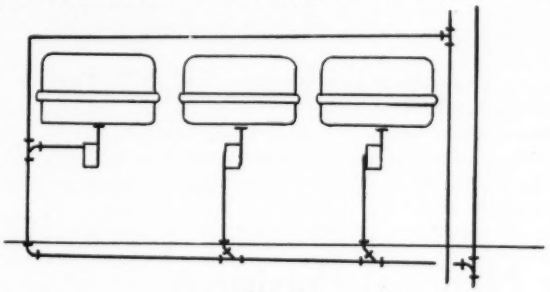


Fig. 16

vent and therefore protect the trap at the extreme right, but not the other three. As a matter of fact the other traps represent ideal siphons, for the outlet is the long arm and the middle section of the trap the short arm of an ideal siphon. We use the word ideal because a siphon is strongest in its action when the outlet arm is long in proportion to the arm that dips into the liquid, and that is the condition in all four of these illustrations.

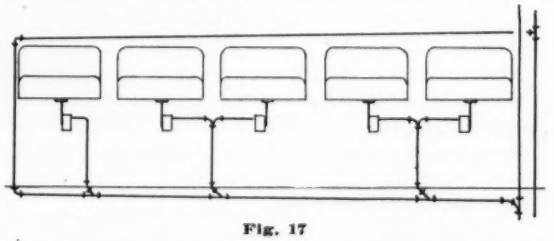


Fig. 17

Of Fig. 15 we cannot say good things of the two drinking fountains that we could say of the end fixture in Fig. 14, for as we have already explained, it is wrong in principle on any continuous vent, to use any trap that has not a horizontal outlet.

Figs. 16 and 17 are not different in principle from Figs. 14 and 15, except that they show non-siphon traps.

◆

The American Gas Association has been appointed sole sponsor for a new project, known as "Approval and Installation Requirements for Domestic Gas Burning Appliances (Z21)," by the American Standards Association standards council.

ROBERTSHAW THERMOSTATS

are favored by most plumbers—they never fail

THROTTLING TYPE. For Side Arm Water Heaters or Automatic Storage Water Heaters. All sizes from 3/8 to 2 inches.

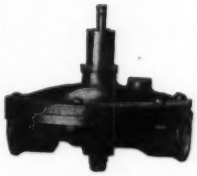
Robertshaw Throttling Type Water Heater Thermostats are fully covered in CIRCULAR FORM R-4. Write for it!

Number 2GV. For single unit circulator and garage heaters. Easily installed. Attractive in appearance. Gas Pipe sizes from ½ to 1 inch.

Robertshaw circulator and garage heater thermostats are fully described in number 2GV circular. Write for it!

SNAP-ACTION TYPE. For Storage Water Heaters and Furnace and Boiler Temperature Control. Gas Pipe sizes from ½ to 2½ inches.

Robertshaw Snap-Action Thermostats are illustrated and described in CIRCULAR FORM R-1. Write for it!



Write for any or all of the above circulars—they're free —no obligation involved.

ROBERTSHAW THERMOSTATS

ROBERTSHAW THERMOSTAT CO.

Youngwood, Pa.

Woman's Page

Since many women of the industry associate with neighborhood friends, they can help the master plumbers by learning through bits of conversation just what the "woman of the house" feels is needed to make her bathroom or kitchen most attractive. By passing along this information to the master plumbers, the latter can talk or write to these prospects on the subject of greatest interest.

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North Shore Auxiliary Elects Officers

The December meeting of the North Shore Plumbing Contractor's Women's Auxiliary was held at the residence of Mrs. George Moore, Evanston, Ill., with Mrs. George Moore and Mrs. Howard Moore hostesses. Amid decorations of Christmas colors, a delicious luncheon was served. The business meeting was called to order by Mrs. Swift, president, with seventeen members present.

Following the regular business session, the members were much impressed with an important report from the charity committee which was appointed to spread good cheer to those in need. Those receiving help were the Evanston Day Nursery, Central Association of Evanston Charities and various needy families, where baskets were sent for Thanksgiving. Each member was requested to bring something in the way of a gift for a child to be included in the Christmas baskets.

The election of officers concluded the business session, the auxiliary selecting Mrs. N. J. Mergenthaler to serve as president, Mrs. Fred Flader vice president, Mrs. Julia McKenna secretary, and Mrs. Alfred Chester treasurer. Following the business meeting bridge was played, honors going to Mrs. Killian, Mrs. Kyle and Mrs. McKenna.

Christmas Celebration Held in St. Paul

On Saturday evening, December 27, the annual Christmas celebration of the Ladies' Auxiliary to the St. Paul, Minn., Master Plumbers Association was held at Degree of Honor hall. Dinner was served and covers were laid

A Message from the National President

The following bulletin on the activities of the women's auxiliaries has been received from the office of the National President:

NEW YEAR'S RESOLUTION—The old year with its tender memories lies behind us. Before us is the New Year, so full of hope and promise. Each member of our great National Women's Auxiliary should have for her New Year's Resolution "A BIGGER AND BETTER AUXILIARY IN 1931, *co-operating with the State and National Auxiliaries, and standing firmly behind the National Association of Master Plumbers in a solid body."*

SCHOLARSHIP—It is gratifying to report the sum of Seventy-five Dollars ($75.00) *received for our National Women's Auxiliary Scholarship (PAST PRESIDENTS) since Bulletin No.* 1 *was issued in September. Only a little more than* $600.00 *is needed to complete this Scholarship and we are hopeful that we may live up to our slogan "OVER THE TOP" before the end of the present fiscal year. Mrs. Charles Werner, Chairman of this Committee,* 3643 *Boulevard, Jersey City, N. J., will be glad to receive any contributions to this fund.*

OPPORTUNITY—The second copy of OPPORTUNITY was issued in December. The third copy will come to you in the very near future. This splendid little paper is published for the purpose of serving as a clearing house for Auxiliary members to exchange views. Don't delay: If your auxiliary has done something worth while send the facts in to this office that we may tell the rest of the members through OPPORTUNITY. In case you do not receive your OPPORTUNITY notify this office.

MEMBERSHIP—BULLETIN No. 1 *carried the request that a complete list of membership of all auxiliaries be sent to this office. To date only the states of Wisconsin, Maine and Ohio, have complied, and the local Auxiliaries of Philadelphia, Pa., and Wilmington, Del. All State Presidents and Presidents of Local Auxiliaries where there is no State Division are urged to attend to this matter without delay.*

DUES—LOCAL Auxiliaries will send their dues (National) to Mrs. Robert Liss, 1919 *Belmont Ave., Chicago, Ill., before the first of April, if possible. Auxiliaries in State Divisions send their dues,* 25 *cents per capita, to their State Treasurer, who forwards them to Mrs. Liss.*

PUBLICITY—Do not forget the trade's papers. Send them your news. Remember that PUBLICITY MAKES PRESTIGE AND PRESTIGE MAKES POWER. Division Presidents will see that copies of this Bulletin are sent to all local auxiliaries in their Division.

A HAPPY NEW YEAR TO ALL!

(Signed) Mrs. W. E. McAndrew, President.

for seventy-five guests. Short talks were made by President Ernest Bossard of the St. Paul Master Plumbers Association, National Director Fred A. Beier and Mrs. Charles Olson of Winona.

Decorations were carried out in holiday colors. Gifts were given to the ladies and men, the children receiving candy and fruit. The Skog sisters entertained with several recitations and other children followed by community singing.

The committee in charge of arrangements was comprised of Mrs. Axel F. Peterson, chairman; Mrs. John E. Holt, Mrs. Fred A. Beier, and Retiring President Mrs. W. H. Steimer.

Officers elected for 1931 are: Mrs. Axel F. Peterson, president; Mrs. E. Bossard, vice president; Mrs. Thomas Shetka, secretary, and Mrs. W. H. Steimer, treasurer.

Milwaukee Women Entertain Children

The Ladies' Auxiliary to the Milwaukee Master Plumbers' Association held its annual children's Christmas party recently at Prospect Lodge, on the corner of North First and North Wright streets, Milwaukee, Wis. Many children took part in the entertainment at the party, exhibiting unusual talent, and a jolly Santa Claus distributed presents during the course of the afternoon.

Cookies were so generously donated by the members of the auxiliary that there was an over-supply, and these were given to the St. Rose's orphanage and to a Protestant orphanage.

The members of the Ladies' Auxiliary wish to extend a vote of thanks, through the medium of "Domestic Engineering," to Mrs. W. W. Dusold and Mrs. William Schoenrock, who have arranged so many splendid entertainments during the past two years.

Mrs. William Haas

Ohio Auxiliary Plans for Large Convention

The convention of the Ohio State Association of Master Plumbers is to be held on February 3, 4 and 5, at Canton, at which time the annual meeting of the Women's Auxiliary of Ohio State will take place. From Mrs. William Haas, president of this organization, we learn that the auxiliary anticipates a well attended meeting in view of the interest of the locals in the work which is being done.

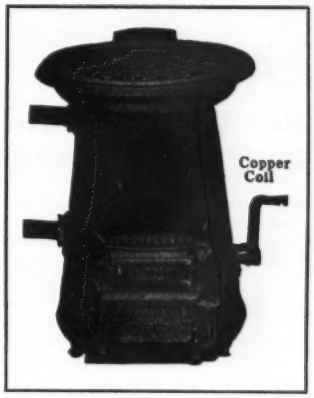
Columbus Women Give Christmas Party

A good attendance was present at the Christmas party for members and their families held on December 20 by the Columbus, Ohio, auxiliary. It was a social affair, and Mrs. B. C. McDonald was in charge of the committee. Mrs. J. R. Jacobs, president of the auxiliary, was presented with a bouquet of beautiful red roses. Each guest received a Christmas gift.

Alameda County Auxiliary Gives Card Party

The annual whist party of the Women's Auxiliary of the Alameda, Calif., County Merchant Plumbers' Association was a bigger and better success this year than ever before. The affair took place recently at Plumbers' Hall, 538 Twenty-fourth street, Oakland, and was given by the ladies for their husbands and friends. Attesting to the popularity of this year's occasion, twenty-three full tables

HOT WATER
at a
MINIMUM
of
TIME
and
TROUBLE



One shovel-full of coal a day is enough to allow the CLE-BAR to furnish an abundance of hot water to the modern home. Copper Coils assure quick response and trouble-free service, CLE-BAR Design and quality insure economy and almost automatic control.

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Hot Water for the Daily News Building

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In selecting the "Patterson," these people followed the precedent set by hundreds of other fine buildings, both large and small.

You take no risk in specifying the "Patterson." *We take all the chances.* For we guarantee these heaters to furnish all the pure hot water required, as hot as required, and as quickly as required. And back of this guarantee is a *50-year-old house* whose financial responsibility and willingness to make good, if necessary, are beyond question.

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106 East 40th St. - NEW YORK, N.Y.

Patterson INDESTRUCTO COPPER LINED Hot Water Heater

Prevent Condensation with Ozite Pipe Covering

Proved highly efficient by U. S. Bureau of Standards figures, Ozite Pipe Covering, of Standard Hair Felt provides lifetime protection for cold water lines, and means freedom from "sweating" or condensation. Made of genuine, sterilized cattle hair. Write today for sample. No obligation.

AMERICAN HAIR & FELT CO.
18th Floor—Merchandise Mart, Chicago

of players took their seats and enjoyed a delightful evening of whist which was concluded by serving delicious refreshments. High score was achieved by Mrs. J. Rankin, Jr. Altogether, six merchandise orders for turkeys, a box of apples and a box of candy were awarded for high and low scores. Those ladies who contributed largely toward the success of this delightful affair were Mesdames Lola Zeis, J. B. Morse, W. H. Picard, W. D. J. Evans and Arthur Johnson.

North Hudson Auxiliary Elects Officers

At the monthly meeting of the Women's Auxiliary of the Master Plumbers' Association of North Hudson, N. J., held on December 9, all the officers were re-elected for another year. Mrs. William T. J. Orriss, president; Mrs. Vincent Farrally, vice-president; Mrs. Charles Steller, treasurer; Mrs. Henry Bunker, Jr., secretary, and Mrs. N. Triani, sergeant-at-arms are the officers of the organization. The three trustees are: Mrs. M. Mehegaux, Mrs. E. Seitz and Mrs. E. Muth.

Salt Lake Women Hold Meeting

The Women's Auxiliary to the Plumbing and Heating Contractors' Association of Salt Lake City, Utah, held its regular monthly meeting at the home of Mrs. Parley G. James. A program of distributing Christmas aid to the needy was furthered by the ladies and the afternoon was spent in sewing, followed by refreshments. The auxiliary also pledged its support to the securing of a state sanitary code at the coming session of the legislature, which commences in January. Mrs. Henry H. Bockholt is president and Mrs. Will Rees secretary.

Washington Women Enjoy Card Party

The Women's Auxiliary to the Master Plumbers Association of Washington, D. C., held a card party on Saturday, December 13, at eight o'clock. The party took place at the residence of Mrs. George Eberly, with 30 members and guests attending. Mrs. Eberly was assisted by Mrs. J. E. McGolrick and Mrs. Henry Eberly. The party was held to help defray expenses of a complimentary Halloween party.

From Mrs. Quinter, president of the auxiliary, we learn that the members of this organization were very active at Christmas time. A special committee was selected to fill baskets with groceries and foodstuffs which were delivered to families of unemployed journeyman plumbers.

Germantown, Pa., Women Active

The members of the Germantown, Pa., Women's Auxiliary had a busy session at their November meeting. Plans were made for a supper which was given on Tuesday evening, December 2, at Waterview recreation center in the auditorium. The room was beautifully decorated. Thirty-three were in attendance, and all enjoyed the delicious supper of baked ham and beans. Later the guests were entertained by an orchestra, and some of the members rendered vocal selections.

Albany Women Give Yule Party

Just before Christmas a delightful party was held at the meeting rooms of the Albany, N. Y., Women's Auxiliary. Mrs. Joseph Stapf, president of the organization, appeared on the scene in the role of "Santa." She was assisted by Vice President Mrs. Andrew Ryan in presenting each member with a lovely gift. Mrs. Henry Noord, secretary, was in charge of games and prizes, while Mrs. William Dugan and Mrs. Clarence S. Keeshan served refreshments. The men arrived after the business meeting and dancing was enjoyed. Mrs. William Ryan was

Top row: Mrs. J. P. Rielly, New Bedford; Mrs. Henry E. Riley, Watertown; Mrs. A. H. Wordell, Fall River. Middle row: Mrs. A. T. Papineau, Hyde Park; Mrs. L. E. Stowell, Marion; Mrs. Charles Kieser, Newton Center, past president of Massachusetts state auxiliary. Bottom row: Mrs. Walter P. Bailey and Miss B. E. Wainer, both of New Bedford; Miss H. E. Joseph and Mrs. M. Carrier, both of Brooklyn, N. Y. Photos taken at the outing of the New Bedford Master Plumbers' Association

in charge of the selection of favors and the dance program. Mrs. Broadbeck rendered several vocal selections, being accompanied at the piano by Mrs. Joseph Nicklas, Jr.

Wilmington, Del., Auxiliary Meets

The Wilmington, Del., auxiliary held its monthly meeting on December 15 at the home of Mrs. Clinton Brown, with twelve members present. During the business session an election of officers took place, Mrs. George Barnett being selected to serve as president, Mrs. Frank Escott vice president, Mrs. Paul Middleton treasurer, and Mrs. Edward McLean secretary. Following this the women prepared eight baskets for distribution to the poor families. A bingo party was held on January 16. A meeting took place on January 19 at the residence of Mrs. James Wharry.

Death of Mrs. A. J. Weinhardt

Word has been received of the death of Mrs. A. J. Weinhardt of Terre Haute, Ind. Mrs. Weinhardt was one of the founders of the Indiana Division of the Women's Auxiliary and had been an active member. Last year she was a member of the National Women's Auxiliary scholarship committee, representing her state under the administration of Mrs. W. E. McAndrew.

What VENTWELL Vacuum Valves Do

1. Modernize the steam heating system by converting it into a vacuum system.
2. Save large portions of the fuel bill.
3. Retain heat longer; generate heat quicker.
4. Reduces firing periods.
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625 West 74th St. Chicago, Ill.

SOLDERING SALTS
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"HOW YOU CAN SELL MORE WATER SUPPLY SYSTEMS"
FLINT & WALLING MFG. CO.
76 OAK STREET, KENDALLVILLE, INDIANA

Business Changes and Ventures

Business Changes

Des Moines, Ia.—Martin J. Corcoran, plumbing and heating contractor, has moved his place of business from 905 Sixth avenue to 1204 West Grand avenue.

Jamestown, N. Y.—The firm of Chatfield & Sharp, Inc., plumbing and heating engineers, with headquarters at 304 Pine Street, has plans under way to acquire the three-story brick factory building in East Sixth Street, which will be equipped throughout as a modern home for the concern.

New Haven, Conn.—H. C. Thurm, plumbing and heating contractor, 63 East Grand avenue, has opened a new establishment at 16 Fountain street, with a modern showroom and is displaying bath room fixtures, heaters, boilers and specialties.

Hutchinson, Kan.—William O'Malley has recently sold his plumbing establishment to W. W. Kitzmiller.

Top row: S. Gruman, Robert Lees, L. R. Penhallegon. Middle row: Thomas C. Douglass, W. R. Pearce, W. L. Hoyt. Bottom row: C. C. Anderson, W. Smith, C. F. Ceasar. Photos taken at the meet of the Plumbing and Heating Club of San Francisco, at the Presidio Golf Club

San Francisco, Calif.—The Fix-It Shop has moved its plumbing and heating business from 2419 Seventeenth avenue to 2226 Travel street.

San Francisco, Calif.—P. W. Wood, Inc., has moved his heating business from 1281 Mission street to 385 First street.

San Francisco, Calif.—J. L. Costa has moved his plumbing and heating business from 694 Filbert street to 1801 Mason street.

San Francisco, Calif.—Julius B. Schultz has moved his plumbing and heating business from 1980 Sutter street to 1945 Sutter street.

New Ventures

Walla Walla, Wash.—Amery & Sons, Inc., has been incorporated with a capital of $60,000 to conduct a plumbing and heating business. The incorporators are Thomas and W. Fred Amery.

Tacoma, Wash.—The Roy E. Thompson Co. has been incorporated with a capital of $50,000 to conduct a plumbing and heating business. Roy E. Thompson, Mary A. Thompson and Roy E. Thompson, Jr., are the incorporators.

San Francisco, Calif.—H. Hofmann has opened a plumbing and heating business at 20 Chester street.

San Francisco, Calif.—Reardon & Co. have opened a plumbing and heating establishment at 941 Bryant street.

Los Angeles, Calif.—The Pico Plumbing & Heating Co. has started in business at 2210 West Pico street. O. D. Wickizer is the manager.

Brooklyn, N. Y.—The firm of Lipsky & Rosenthal, Inc., has been chartered, with a capital of $60,000, to establish and operate a plumbing and heating contracting and engineering business. John Goodman, 50 Court street, represents the new concern.

Brooklyn, N. Y.—With a capital stock of $20,000, the firm of Dayton & Montgomery, Inc., has been chartered, by A. L. Dayton and Y. E. Montgomery, to establish and operate a plumbing engineering and contracting business in South Brooklyn. The new concern is represented by H. F. Heistad, 190 Montague street.

New York, N. Y.—E. H. Doernberg and associates have organized and incorporated the firm of E. H. Doernberg, Inc., with a nominal capital of 100 shares of no par common stock, to establish and operate a plumbing contracting business. The new concern is represented by W. S. Doernberg, 29 West Forty-third street.

Newark, N. J.—The Plumbing and Heating Service Company has been organized and incorporated to establish and operate a plumbing and heating engineering and contracting business. D. H. Krasner, local attorney, represents the new concern.

Wilmington, Del.—With a capital of $30,000, the firm of Hughes Brothers, Inc., has been chartered, to establish and operate a plumbing and heating engineering and contracting business. The new concern is represented by Franklin L. Mettler, local attorney.

Cleveland, Ohio—The Burens Heating and Ventilating Company has been organized and incorporated, with a capital of $25,000, by Edward F. Burens, Monroe Marks and Jerome W. Moss, to establish and operate a heating and ventilating engineering and contracting business. The

new concern has established temporary headquarters at 704 Guardian building.

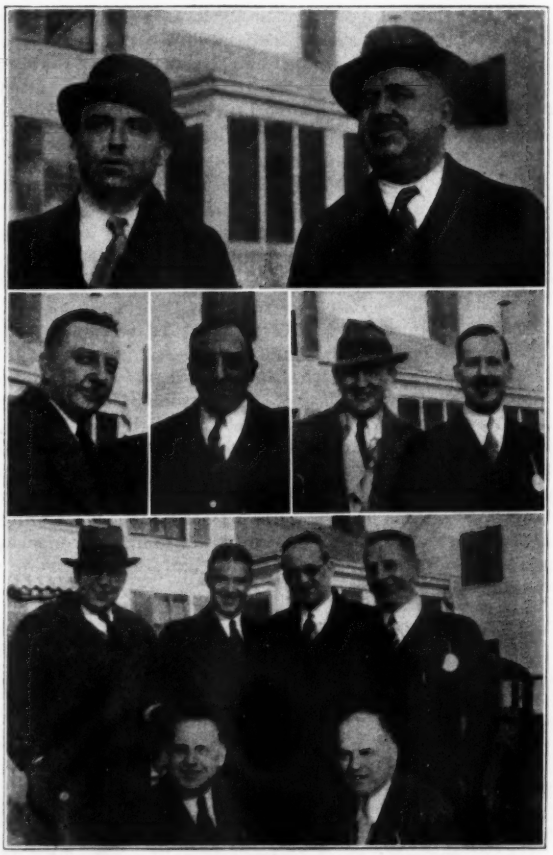
Olean, N. Y.—The firm of Hickey Bros., Inc., has been chartered, with a capital of $50,000, to take over and continue the operation of a plumbing engineering and contracting business here formerly conducted as a partnership. Principals of the new concern are John M. Hickey, Robert G. Finlay and Helen C. Hickey.

Syracuse, N. Y.—The Friedman Heating and Electrical Corporation has been organized and incorporated, with a capital of $10,000, by A. L. Friedman and associates, to establish and operate a heating engineering and contracting business. The new concern is represented by F. E. Friedman.

San Francisco, Calif.—William Molkentin has engaged in the plumbing and heating business at 1642 Bush street.

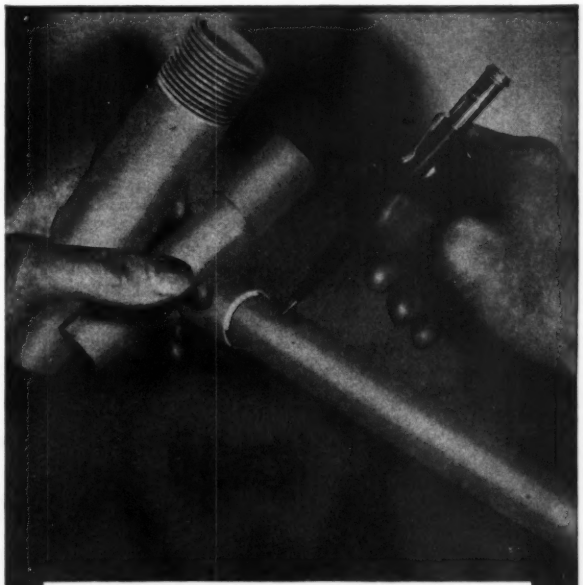
Horseheads, N. Y.—Rockwell-Hewitt, Inc., has been chartered, with a capital of $34,000, to establish and operate a hardware, plumbing and heating engineering and contracting business. The new firm is represented by R. S. Cooper, local attorney.

Buffalo, N. Y.—The Heat Sales & Engineering Co. has opened a heating business at 121 Linwood avenue.



Top picture: Ernest Mullins and A. F. Chellis, both of Dalton-Ingersoll Mfg. Co., Boston. Second row: Frank Johnson of Nye Tool & Machine Works, Arthur Archambault of Geo. E. Trudel Co., Manchester, N. H.; Henry Noe, Somerville Iron Works; A. L. Gustafson, Holyoke Heater Co. Bottom picture, back row: Ralph Emerson, John Milliken of Spang, Chalfant & Co., Inc., Boston; Harold Coombs, E. B. Badger & Sons, Boston; Frank Meyers, Ohio Brass Co., New York. In front row: William Clark, Providence Fittings Co., and Walter Stevens of Walworth Co. Photos taken at the annual meeting of the Plumbing, Steam and Metal Salesmen's Association of Maine

Fretz-Moon



It's a Good Job—

THAT'S what everybody says every time a length of Fretz-Moon Pipe is cut, threaded or bent. The steel is uniform, cutting and threading easily. Welds are tight and will stand plenty of abuse. And long life in service is assured by the hot galvanizing process—providing a thick smooth coating of pure zinc spelter that does not flake during working.

Fretz-Moon Pipe has many friends—and is making more every day. Let us send you additional information.

FRETZ-MOON TUBE CO., INC.
BUTLER, PA.

PIPE

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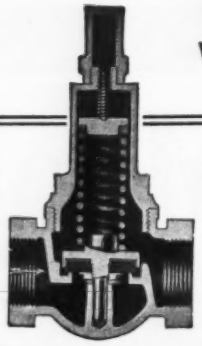

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Water Pressure Regulating and Relief Valve

In high buildings where pressure must be maintained equally, this valve will be found almost indispensable. It is also used to good advantage on hot water storage tanks and pumps as a water pressure relief valve.

Our complete catalog is chock full of important and simple information regarding this Valve and Water Feeders. We advise you to write for it before ordering

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specifications are best met by using
Zeolite Upflow Softeners
The economical and efficient method of producing soft water.

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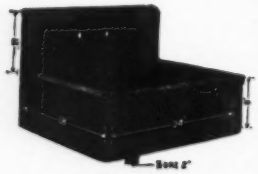

Figure 237
Acid Proof One Piece Laboratory Sink with Back

UNUSUAL strength, toughness and durability, ease of installation and inexpensiveness combined with its acid and corrosion proof qualities make Knight-ware ideal for WASTE, DRAIN and VENTILATING LINES, LABORATORY SINKS, SUMPS and similar acid proof equipment.

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KNIGHT WARE
"IT IS THE BODY ITSELF"

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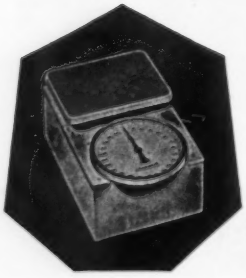


A bathroom or health scale that can be sold for $12.00. Larger model for $15.50. Attractive with appealing lines, colors. Six-spring mechanism, 250-lbs. Guaranteed for life. This scale cannot tip. Write for prices.

HANSON SCALE COMPANY
546 North Ada Street, CHICAGO

New Trade Literature

Circular of D. G. C. Trap & Valve Co.

The D. G. C. Trap and Valve Co., Inc., New York City, is mailing a circular dealing with one of the traps of its manufacture. A photographic reproduction shows a cutaway view of the trap. Its construction, mechanical details and operation are described.

Folder of American Radiator Co.

The American Radiator Co., New York City, has issued a four page folder describing the features of the new humidifier of its manufacture. The need for proper home humidification is also set forth. The operation of the device is described, its price is given, and several illustrative half-tones appear. Dimensions and data for installation are also given.

Combination Broadside and Folder of Riverside Boiler Works, Inc.

Riverside Boiler Works, Inc., of Cambridge, Mass., has just issued a combination broadside and folder, illustrating and describing in detail its oil storage tanks, septic tanks, copper storage tanks and boilers, galvanized tanks and range boilers, etc.

Catalog of Heating Specialties

Grinnell Company of Providence, R. I., has issued a new looseleaf catalog consisting of data sheets of heating specialties including descriptions and illustrations of radiator traps and valves, blast traps, high pressure traps, alternators and vent traps, damper regulators and compound gauges, and other heating specialties.

Publication On Electric Service Plants

The entire line of Westinghouse electric service plants is described and illustrated in an eleven-page folder, identified as MK 1284, recently published by the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

Calendar for 1931

The calendar of Warren Webster & Co., Camden, N. J., has been received. This year it consists of a sheet, 12x18 in., for each month. The January sheet also contains calendar. Each sheet brings illustrations of one or more the following month, and this system is followed throughout the entire year, making it a very convenient reference calendar. Each sheet brings illustrations of one or more of the large buildings in which the company's system of steam heating has been installed, among them office buildings, department buildings, court buildings, residences, hospitals, churches, hotels, club buildings, university buildings, etc.

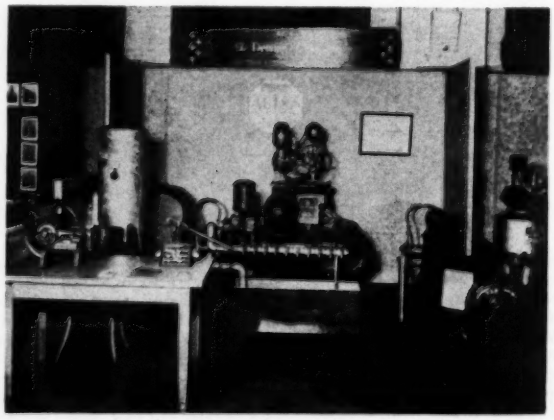


Exhibit of the Deming Co., of Salem, Ohio, at the Boston convention of the National Association of Master Plumbers

Pipe —— Lines
Connected by LYT

HEARD IN PASSING

She: "Darling, how could you live without me–"
He: "Cheaper."

P. G. N., Chicago

A FEW QUICK ONES

Last week when it rained cats and dogs, the roadway was covered with little poodles.

Among the items that go to make up the high cost of living are taxes and taxis. In the case of the latter, however, you do get a run for your money.

As 'tis with the tree, so 'tis with the stock market—it thrives on the sap.

After calling a prisoner down the judge is likely to send him up.

There is too much love in fiction—and too much fiction in love.

All that many a man realizes on his investments is what a fool he was.

It's often the mink in the closet that brings the wolf to the door.

LEIGHTON'S GLOOM CHASER.

A READER WRITES

Not a splash was heard, not a tap would turn
When home from the party we hurried,
The meter was frozen; the gas could not burn;
The doorstep in.snow was buried.

We found as we wandered, with matches in hand,
Through the dim and cheerless lobby,
That the place had been ravaged by Jack Frost's hand
Defiant of bolt or of "bobby."

We wrestled stoutly, till midnight came,
Our feet to icicles turning,
As we warmed lead pipes, with a candle's flame,
Our fingers repeatedly burning.

Short and sharp were the words we said,
Not all of them words of kindness,
Nor the blessings we wished, on the builder's head
And the handy janitor's blindness.

Harshly we talked of the artists that put
Those pipes where the frost had found 'em.
We wished the chap stuck in the water-butt,
With their frozen triumphs round 'em.

R. M. Ross, Gary, Ind.

SOME MORE QUICK ONES

Another definition for Pop: A kin you love to touch.

I know a girl so dumb she was fired from Woolworth's because she couldn't remember the prices!

Almost any motorist will gladly give a lady-driver half the road, if he can find out which half she wants.

IT'S SAID AND DONE

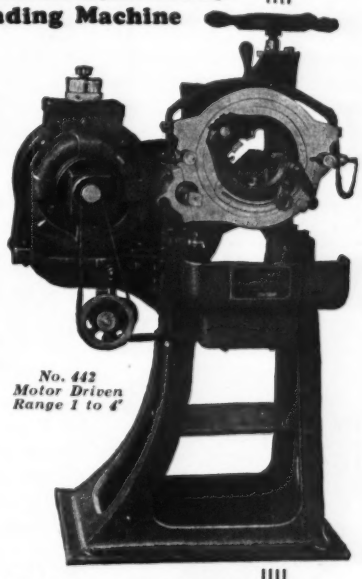
A bore, says the "Kreolite News," is a person who persists in talking when you want to talk.

And, even more particularly, when you want to sleep.

L Y T.

Curtis

Pipe Threading Machine



No. 442 Motor Driven Range 1 to 4"

The Curtis Pipe Threading Machine is the most economical for you.

It takes up less floor space.

Because the dies turn instead of the pipe, it uses less power.

It may be hand operated during power failure.

It is faster.

Bends can be threaded.

Investigate The Curtis. Write for full details.

THE CURTIS & CURTIS CO.
318 Garden St. Bridgeport, Conn.

A Choice of the Best

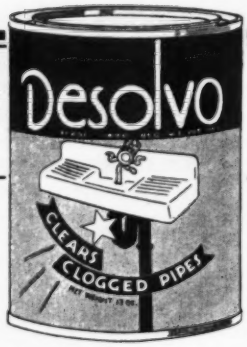
That's what you get in replies from a DOMESTIC ENGINEERING Classified Advertisement.

No matter what your problem—if you want a job, or a man for a job, if you have some used equipment to sell or want to buy some, if you want to know what the leading books on plumbing and heating are, if you want bids on a job—a DOMESTIC ENGINEERING Classified Advertisement will solve that problem.

Domestic Engineering
1900 Prairie Avenue, Chicago, Illinois

Priced Right!!

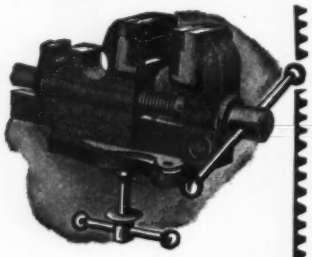
Here is a pipe cleaner that is priced right. It is not only reasonable in original cost but a little DESOLVO goes a long way and it always cleans.



The Chamberlain Company
PITTSBURGH ◆ ◆ ◆ Pa.

Your jobber can supply you.

VANDERMAN
COMBINATION PIPE VISE



With this Combination Bench and Pipe Vise in your shop you can handle work from 1/8" to 10" faster, easier and better.

This Vise has removable Steel jaws.

THE VANDERMAN MFG. CO. Willimantic, Conn.

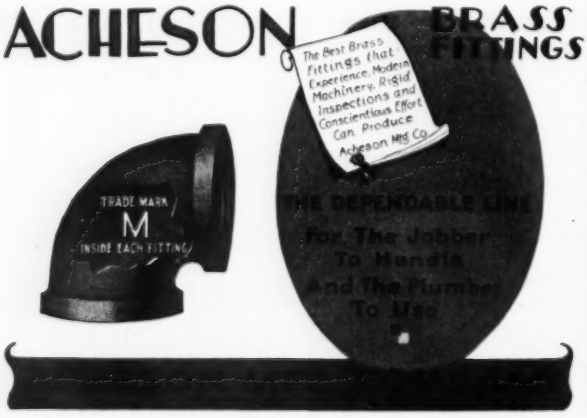
"AMERICAN SEAL"

PIPE JOINT CEMENT
Dry or Plastic « Gray or Graphite

No more leaky installations! "American Seal" Pipe Joint Cement eliminates the possibilities of leaks. It is easy to use and will assure against leakage for all time. It will not dry out and what is more, it is unaffected by heat or cold. Be on the safe side all the time—use "AMERICAN SEAL" on every job.

William Connors Paint Mfg. Co.
TROY N. Y.

ACHESON BRASS FITTINGS


The Best Brass Fittings that Experience, Modern Machinery, Rigid Inspections and Conscientious Effort Can Produce
Acheson Mfg Co.
TRADE MARK
M
INSIDE EACH FITTING

Bath a Day Movement

One very definite element in the cost of selling is the resistance which every prospect sets up before the salesman. It adds to the time of selling. It makes it necessary for him to sell, first, in a general way, instead of being able to get right down to the product he wants to dispose of, taking the background of that product for granted. In the case of plumbing fixtures, that background is the need for plumbing in a fundamental way—how it ministers to health and comfort—and the important place the plumber holds in the community.

177

Thus, the salesman is under the necessity of doing a general educational job before he can sell his product. This should not be. The Bath a Day Movement, and particularly "The Story of the Bath" were designed to carry on this educational process in an interesting and humorous fashion. The cordial reception of the booklet, its use in 177 cities and towns in the United States for supplementary reading in the schools, proves that it has fulfilled its purpose admirably.

Alert contractors, or association officials, looking for something to stir up interest in the plumber in their communities, should write us for a copy of the booklet and details of how to use it. A copy will be sent free on request. Just ask for it on your letterhead.

Little Sentences That Sell

Write one of these BLACK BOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

A good man's light shines day and night.

* * *

A freshman is always a first class fellow.

* * *

A man who acts small makes a big mistake.

* * *

The original family tree was of the apple variety.

* * *

A gem of thought is often impaired by a bad setting.

* * *

Some people can berate if they can't be president.

* * *

Bellows are not boxers, yet they often come to blows.

* * *

It is the dance music that always reaches the sole.

* * *

The finger of destiny is undoubtedly on the hand of fate.

* * *

No man ever bows to fate as a matter of courtesy.

* * *

Adversity sometimes brings a man's good points out by the roots.

* * *

A locomotive engineer has to whistle for his pay.

◆

Wenzler & Ward, Inc., plumbing and heating contractors, of Seattle, Wash., have been awarded the contract for the plumbing, heating, ventilating and automatic sprinkler system for the new 17-story Textile Tower building located at Seventh and Olive streets, Seattle, Wash. Earl W. Morrison is the architect. A feature of the job will be the use of unit heaters throughout.

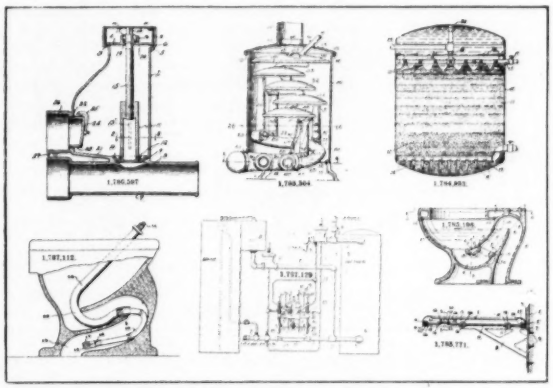
PATENTS

Plumbing Department

1,786,597. Drainage Fitting. Edward W. N. Boosey, Detroit, Mich.

1,785,304. Water Heater. Leo Ganz, Chicago, Ill.

1,784,893. Water-Treating Apparatus. Emil G. Duden, Oakmont, Pa., assignor to Wm. B. Scaife & Sons Company, a Corporation of Pennsylvania.



1,787,112. Closet Auger and Stoppage Grip. Randall A. King, Pueblo, Colo.

1,787,129. Water-Softening Apparatus. Edward T. Turner, Dayton, Ohio.

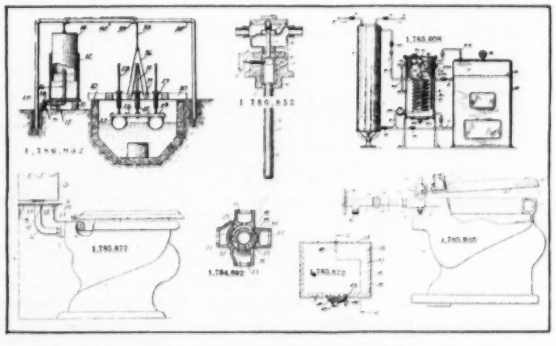
1,785,198. Water-Closet Bowl. Howard F. Kelso, Houston, Tex.

1,785,771. Drain Board. Frederick Geiger, Cleveland, Ohio, assignor to The Enamel Products Company, Cleveland, Ohio, a Corporation of Ohio.

1,786,032. Sewage Disposal Plant Pump. Thomas B. Sims, Cleburne, Tex., assignor to L. J. Wardlaw, Tarrant County, Tex.

1,786,852. Thermostat. John J. Kenney, Pittsburgh, Pa.

1,785,098. Automatic Boiler Control and Water-Heating Device. Morris Seidel, Brooklyn, N. Y., assignor of fifty per cent to Leon Sanders, Woodmere, Long Island, and George Green, Brooklyn, N. Y.



1,785,877. Drip Pan for Toilet Flush Tanks. Norbert A. Rubner, Milwaukee, Wis.

1,784,892. Fluid-Treating Apparatus. Emil G. Duden, Oakmont, Pa., assignor to Wm. B. Scaife & Sons Co., a Corporation of Pennsylvania.

1,785,872. Protective Cover for Plumbing Fixtures. John H. McCann, Chicago, Ill.

1,785,935. Valve and Seat Combination for Bidet Control. Cesare C. Campus, Santa Monica, Calif.

1,785,115. Soldering Flux. Harry B. Dykstra, Wilmington, Del., assignor, by mesne assignments, to The Grasselli Chemical Company, Cleveland, Ohio, a Corporation of Delaware. In a process of soft soldering, the step of applying a flux comprising a chlorinated rosin.

1,785,180. Flux for Use in Soldering. Harry P. Corson, Lakewood, Ohio, assignor to The Grasselli Chemical Company, Cleveland, Ohio, a Corporation of Delaware. In a process of soft soldering metals the step of applying a soldering flux comprising a sulfonated vegetable oil compound.

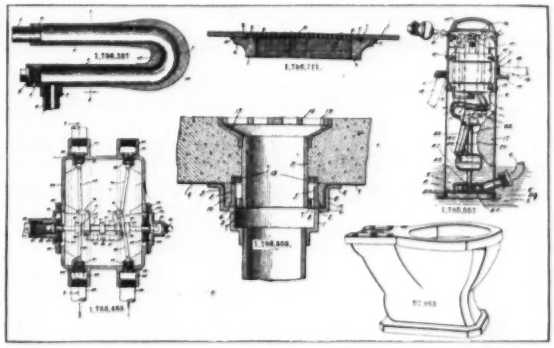
1,785,181. Soft Soldering Flux. Harry P. Corson, Lakewood, and Earl S. Ridler, Shaker Heights, Ohio, assignors to The Grasselli Chemical Company, Cleveland, Ohio, a Corporation of Delaware. In a process of soft soldering metals the step of applying a flux comprising zinc chloride and an aldehyde.

1,786,337. Water Heater. Charles Dargent, Brooklyn, N. Y.

1,786,771. Drain Connection. Edward F. Niedecken, Milwaukee, Wis.

1,785,557. Sump Pump. Jonas L. Oberdorfer, Syracuse, N. Y., assignor to M. L. Oberdorfer Brass Company, Syracuse, N. Y., a Corporation of New York.

1,786,468. Water System. Clarence Warner, Dayton, Ohio, assignor to Delco Light Company, Dayton, Ohio, a Corporation of Delaware.



1,786,558. Floor Drain. Edward W. N. Boosey, Detroit, Mich.

82,963. Water Closet Bowl. Harry F. Weaver, Evansville, Ind. The ornamental design for a water closet bowl, as shown.

1,786,501. Water Softening and Purification. Arthur Romayne Moberg, Minneapolis, Minn., assignor to Fred O. Paige, Jr., Hammond, Ind.

1,785,777. Process for Producing Vitreous Enamels. Charles J. Kinzie, Niagara Falls, N. Y., assignor to The Titanium Alloy Manufacturing Company, New York, a Corporation of Maine. In the preparation of a slip for vitreous enamels and glazes from mill liquor containing alkaline substances, the step which consists in treating said liquor with a salt of one of the metallic elements in Group IV, Sub-group A, of Mendelejeff's classification having a molecular weight below 100 to neutralize said alkaline substances and produce a hydrate precipitate of the element introduced as said salt.

1,788,358. Check Valve Operating in the Direction of Normal Flow. Walter Goerg, Woodcliff, N. J., assignor to Air Reduction Company, Incorporated, New York, N. Y.

ARMSTRONG
PRESSED STEEL
Portable VISE STAND
4 Leg and 3 Leg Models

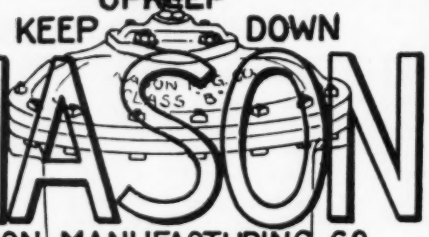
Lighter, more practical. Truly portable, yet strong and husky. Tops, gas welded into one piece. Wide spread. Has dandy pipe bender—great seller—properly priced.

Order from your Jobber

The ARMSTRONG MFG. CO. OF BRIDGEPORT CONN. (FOUNDED 1888)

Send for Booklet "B"

GENUINE NASON STEAM TRAPS
UPKEEP
KEEP DOWN



NASON
NASON MANUFACTURING CO.
71 FULTON ST. NEW YORK N.Y.
Steam Specialty Specialists Since 1841

Improved "Wilhelmi"
COPPER BOILERS
The boiler for your customer

Naturally you have your customers' interests at heart. If you want to give them the maximum in boiler efficiency and quality, tell them about the Improved "Wilhelmi" Copper Range Boiler. They'll never regret it—neither will you.

HAYES MFG. CO., Makers
Paterson New Jersey

You wouldn't think of missing your daily paper « « «

yet it does not begin to help you as your business paper does . . . so why not spend a minute to send in your subscription. You will soon realize the tremendous help you have been doing without.

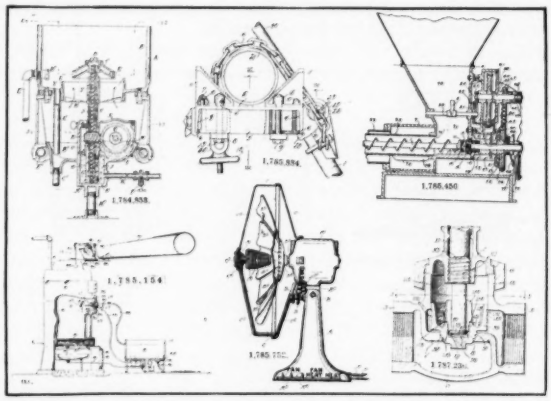
DOMESTIC ENGINEERING
1900 PRAIRIE AVENUE • • CHICAGO

Heating Department

1,784,853. Oil-Burning Apparatus. Homer Andrew Tiffany, Clifton, N. J.

1,785,884. Pipe Vise. William W. Vosper, Toledo, Ohio, assignor to The Toledo Pipe Threading Machine Company, Toledo, Ohio, a Corporation of Ohio.

1,785,456. Automatic Coal Burner. Adolph Ousdahl, Seattle, Wash.



1,785,154. Oil-Burning Process. Whitman Symmes, San Francisco, Calif., assignor to Anson Stiles Blake, Berkeley, Calif.

1,785,752. Combined Air Circulating Fan and Heater. Royal C. Vilas, Golf, Ill.

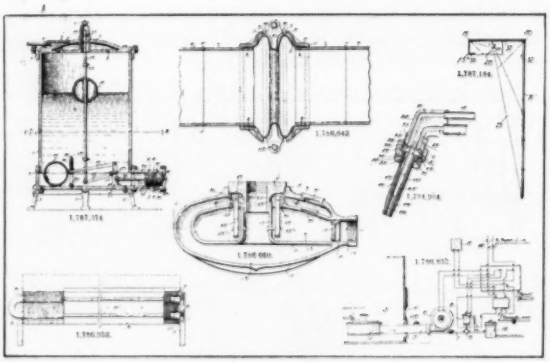
1,787,236. Valve. Carl A. Dopp, Chicago, Ill., assignor to Crane Co., Chicago, Ill., a Corporation of Illinois.

1,787,374. Steam Trap. Edmund T. Hewitt, St. Louis, Mo.

1,786,642. Expansion Joint. Davis S. Boyden, Allston, Mass., assignor to E. B. Badger & Sons Company, Boston, Mass., a Corporation of Massachusets.

1,784,964. Cutting and Welding Torch. Alexander F. Jenkins, Baltimore, Md.

1,787,184. Radiator Shield. Ben Altheimer, University City, Mo., assignor to Myrtle Altheimer, University City, Mo.



1,786,660. Hot-Water and Steam Generator. August M. Kolstad, Detroit, Mich.

1,786,832. Oil-Burning Apparatus. Harold B. Donley, Augustus J. Frame, and Jackson G. Gilmore, Columbus, Ohio, assignors to Franklin Oil Heating, Incorporated, Columbus, Ohio, a Corporation of Ohio.

1,786,952. Radiator. John Karmazin, Detroit, Michigan.

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion.

CLASSIFIED ADVERTISING

One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

Situations Open

SURE QUICK COMMISSIONS

Salesman calling on engineering departments, hotels, industrials, hospitals, colleges, etc., to sell quality plumbing repair parts. State rights given. Straight weekly commissions paid. Regular or side line. Address Key 575. "Domestic Engineering," 1900 Prairie Avenue, Chicago.

TWO EXPERIENCED BOILER AND radiator salesmen with large acquaintance for Eastern New York territory, also for Eastern Pennsylvania territory. Must be high class men capable of taking entire charge of territory. Give full particulars in letter. All answers confidential. Reply to Key 580, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

REPRESENTATIVES WANTED IN leading cities to handle highest grade line of radiator shields and radiator cabinets. Our representatives earn $500.00 to $1,000.00 per month the year around, above expenses. Full selling plan furnished. Address Key 256, "Domestic Engineering," 1900 Prairie Ave., Chicago.

SALESMAN: YOUNG MAN, 25 OR 30, with thorough knowledge of boiler and radiator business for Chicago territory. Write stating age and experience. Address Key 579, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

WONDERFUL MONEY-MAKING EXclusive or Side-line proposition for salesmen calling on plumbing dealers. Write us today. KOIL-LES HEATER COMPANY, Geneva, Illinois.

REPRESENTATIVES WANTED FOR air conditioning system for residences, which provides filtered, humidified and tempered air. Must understand heating and be financially responsible. Address Key 582, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

Lines to Handle

MANUFACTURERS' REPRESENTAtives wanted to sell old established line of floor drains to the wholesale plumbing trade on a commission basis in the following territories: Washington and Oregon states, California, Minnesota and Wisconsin, New York state (New York City excluded), Western Pennsylvania, Ohio, Illinois (Chicago excluded), Indiana and all the southern states. Address Key 571, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

Situations Wanted

SITUATION WANTED—BY MAN WITH many years experience in plumbing jobbing shop. Can estimate plumbing and heating replacements. Bookkeeping, typing, invoicing; working up additional business. Full time or part time in Chicago or suburbs. Good references. Salary in accordance with what you can afford. Answer quick. Address Key 581, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

SALESMAN, THIRTY-SIX, MARRIED and live-wire, ten years' sales experience pipe and plumbing supplies, wants position with manufacturer. Sales promotion, architects or selling to jobbers. Philadelphia or New York territories. Salary. Good references. Address Key 577, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

PLUMBING AND HEATING SUPERINtendent and engineer, first class, thoroughly familiar with all classes of large and small work, desires to make a change soon. Address Key 569, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

For Sale

FOR SALE—PLUMBING BUSINESS IN good town in N. E. Nebraska doing a good business. Owner has to change climate. Address Key 578, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

FOR SALE—MANUFACTURING plant equipped for manufacture of sanitary enameled iron ware; such as bath tubs, lavatories, kitchen sinks, etc. Could readily be converted into general foundry and machine works, if desired. Well located in eastern section of middle west. Shipping facilities embrace both rail and water. Labor conditions good. Financial assistance, to some extent, could be obtained. Address Key 549, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

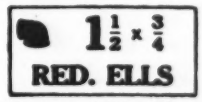
Use this page to get what you want

If you are looking for competent employes; or if you contemplate a change in position, have a patent for sale; wish to purchase or sell a plumbing and heating business; second-hand machinery or tools; form a co-partnership, etc., your advertisement on this page will put you in touch with the people you desire to reach.

The cost of insertion is only eight cents a word and may mean many dollars to you.

Miscellaneous

PLUMBERS' BIN LABELS



Send for samples and prices of card holders, bin labels and stop valve tags, and free booklets: "How to Lay Out the Plumbing Shop" and "How to Train the Apprentice Boys." Haddon Bin Label Co., Haddon Heights, N. J.

USED OSTER PIPE MACHINES

2" Oster Portable, No. 412.
2" Oster Portable Gasoline Engine Drive No. 402.
2" Oster Belt Drive No. 300.
4" Oster Belt Drive No. 304.
4" Oster Motor Drive No. 304B.
4" Oster Gasoline Engine Drive on Portable Truck.
6" Oster Gasoline Engine Drive, on Portable Truck.
6" Oster Belt Drive No. 306.
6" Oster Motor Drive No. 316B.
8" Oster Belt Drive No. 308.
8" Oster Motor Drive No. 308B.

All the above overhauled and complete with equipment as supplied with new machines.

Send for list of other machines in stock. 50 Used Pipe Machines in Stock. THE O'BRIEN MACHINERY CO., 113 N. Third St., Philadelphia, Pa.

LETTER HEADS, BILL HEADS, JOB TICKETS, TIME SHEETS, ETC., FOR PLUMBERS

Reasonable prices; quick service. Send for samples. LOUIS FINK & SONS COMPANY, School Building, Laurel Springs, New Jersey.

Books for Your Trade Library

THE TABLE OF ESTIMATED RADIATION. By Harry B. Perrigo. Gives the accurate amount of radiation required for any size room. Computed from standard recognized rules and simplified to a degree that makes it readily understood by any man with even a limited knowledge of heating. Two tables—one for steam and the other for water—are printed in two colors on heavy celluloid—making four pages in all. Substantially bound. Size 4½x7¼ in. Saves time and eliminates errors. Price, postpaid, $1.00.

MERCHANDISING THE PLUMBING BUSINESS. By Karl W. Zoeller. A treatise on merchandising as applied to the plumbing and heating business, that should be read by every plumber, contractor or jobbing plumber. The subject is completely covered by the twenty-six chapters, and in a manner making it interesting and easy to read. It contains many valuable suggestions on Window Display, Showrooms, Advertising, etc. No matter how large or small your business, you need this book. Size 4½x6¾ inches. Over 100 pages. Price, postpaid, $1.50.

Domestic Engineering
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1900 Prairie Avenue, Chicago

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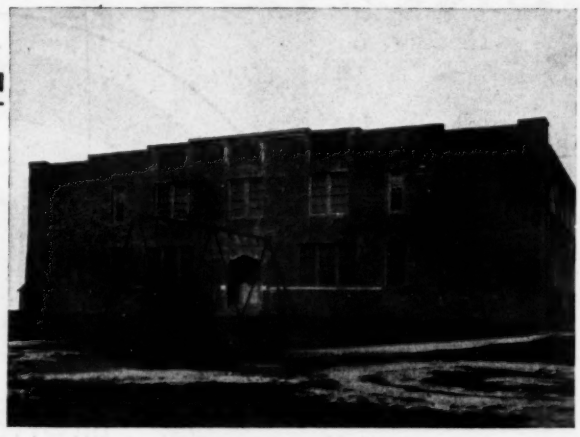

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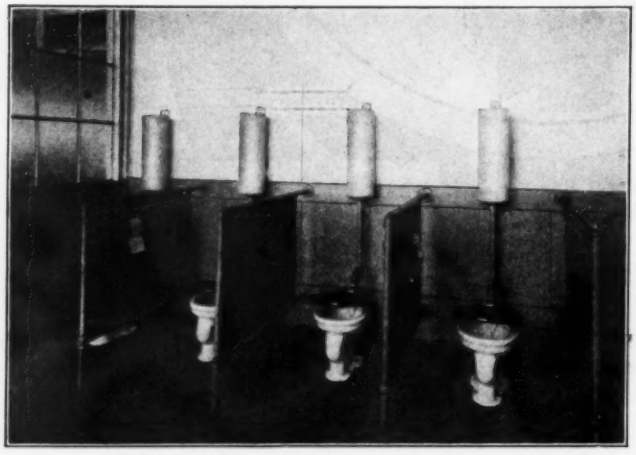

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